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THE CANCER PROBLEM.*

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Various procedures have been employed in the attack upon the diseases of man. In general, they may be grouped under the headings of prevention and treatment. And, as an introduction to this paper, it may be worthwhile to pause for a moment to consider some shining examples of how these procedures, singly or in combination, have worked to alleviate the sufferings of mankind.

Among the striking examples of relief by preventive measures may be mentioned smallpox which, in the past, has often decimated the population of the world. Due to the work of Lady Mary Wortley Montagu and Lord Jenner, vaccination has made this disease a negligible factor in the causation of death among civilized peoples. Among other diseases, similarly attacked with success, may be mentioned diphtheria, rabies, typhoid and typhus fevers.

In the realm of therapy the treatment of diphtheria, meningitis, malaria, syphilis and pneumonia stand out as striking examples of the success of therapeutic measures.

Instances in which combination of the two procedures afforded great relief from suffering are numerous: prevention plus the treatment of tuberculosis has relegated this disease from the first cause of death to the seventh; pure food and water supply have done more to control the ravages of malaria and typhoid fever than have the use of quinine or vaccination; venereal and heart diseases are being attacked from the standpoint of prevention as well as of treatment.

Credit for the success which has thus far been obtained should be properly allocated; it by no means belongs entirely to the medical profession. The enactment and the enforcement of laws have helped immeasurably in the control of smallpox and diphtheria. An enlightened public sentiment has demanded sanitation and segregation which have been the backbone of our fight against many diseases, such as typhoid fever, malaria, tuberculosis, hookworm and more recently syphilis. I would not belittle the efforts of my own profession which has laid the foundations of all our brilliant successes in the fight against disease, but I do want to acknowledge the debt we owe to the wisdom of our citizenry when once it becomes acquainted with the facts we have learned.

It is an unwarranted assumption that little progress can be made in the treatment of any disease until the cause of that disease is discovered. This certainly was not true in the case of smallpox, in the cause of which we still admit our uncertainty by calling it a virus disease. On the other hand, in the case of tuberculosis, the world lost valuable time by sitting on its haunches and waiting for somebody to bring forth a specific antidote to the tubercle bacillus. Finally, the Anti-tuberculosis League came to the rescue and today, without any specific remedy, has accomplished wonders toward eradicating this disease. Likewise, it is questionable how much modern chemo-therapy has been influenced by knowledge of the various bacterial diseases.

So, this brings us to the problem of cancer, the exact etiology of which is still unknown. Shall we continue to wait for some brilliant discovery of its cause and cure? Or, is there some program which offers hope of mitigating or preventing the suffering from this disease? A discussion of this problem is my thesis for this occasion.

In this fight against cancer it is obvious that we should marshall all of the forces at our command. In general, there are three armies which may be brought into action: (1) The research workers who

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are endeavoring to find the cause of this disease and to improve the weapons with which it must be fought; (2) the practicing doctors who must wield the instruments of warfare; and (3) the public who are being attacked. There will be no victory until all three armies are brought into the most efficient action.

For many years the research army has been bearing the brunt of the attack and we may, I believe, take justifiable pride in the fight it has made. Radium and roentgen rays have been discovered and their effectiveness in the battle has been marvelously

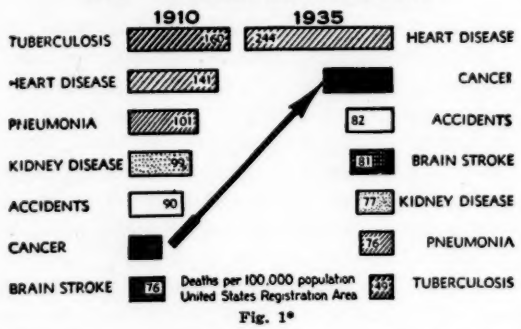

Fig. 1*

improved; the battlefield of surgery has been miraculously enlarged. These things have not just happened. Back of them stand untiring energy, devotion to duty and self-sacrifice of Madam Curié, Roentgen, Coutard, Lister, Halsted and other notable fighters (in this battle) too numerous to mention. And the fight of these superhuman warriors goes on. In the Rockefeller Institute the Rous cancer (sarcoma) has been kept alive and growing for over twenty-five years and enough of this tumor has been grown to fill this very hall in which I am speaking. In the Roscoe B. Jackson Laboratories, Little and his associates have bred and studied over a million mice of cancer strains; in Chicago, Maude Slye has made studies on 160,000 such animals. Other investigators are doing similar work on fowls, dogs, plants and other species of living things which are susceptible of having cancers. Day in and day out there are now literally thousands of people studying living cancer cells—their rate of growth, their response to various substances, their breathing abilities and in countless other ways. Scientists are waiting almost breathlessly for Lawrence to report his studies on the use of the cyclotron and the various salts which he has succeeded in making radio-active.

These brief references will serve to illustrate the activity of this research army; countless others could be mentioned. New knowledge and new instruments of warfare in this battle are constantly being made available. We admire, we applaud and we support this army of research workers.

But the time is long past when applause and support of reasearch workers will suffice in this battle against cancer. Today it is estimated that the maximum utilization of our existing knowledge would save five hundred thousand lives from a cancer death during the next ten years. Let me cite you a few shining examples of this avoidable loss of life from cancer. Last year 13,708 women died from cancer of the breast, when with a maximum use of our present knowledge 11,651 of them should have been cured. Likewise, there were 16,280 deaths from cancer of the cervix, when with our present knowledge only 2,768 should have died. Cancer of the rectum killed 7,325 more than medical knowledge and skill could justify. The little mole caused an unnecessary loss of perhaps a thousand lives. Avoidable irritations of the skin, lips and mucous membranes caused literally thousands of deaths. And so on, the list could be extended almost indefinitely.

The gap between what can be done and what is being done is inexcusably wide and cancer is marching through to win the battle to the tune of over fifty thousand lives a year which can and must be saved. Who can fill the breach? The answer is the medical profession and the public, armed with the existing knowledge concerning the prevention, diagnosis and treatment of cancer. The complete armament of ourselves with such knowledge is an obvious duty; helping to arm the public is an inescapable moral obligation.

On our part it requires work to keep abreast of the ever-advancing knowledge in connection with the cancer problem. What was known fifteen, ten, five or even less years ago may be totally inadequate for us to claim a right to handle efficiently this problem. On this occasion I can do little more than indicate some of the methods by which we can keep abreast of the knowledge of cancer and thus do our part to lessen that gap between what is known and what is being done for cancer.

First, it is essential to know some facts concerning

*Charts in this article are copied from the *Bulletin of the American Society for the Control of Cancer.*

the toll of the various cancers of the human body. The accompanying table presents this knowledge in approximately accurate form:

The annual deaths from cancer in 1936, were reported as 142,613. Of this number the

breast	accounted	for	13,708
cervix	"	"	13,838
uterus	"	"	2,442
buccal cavity and pharynx	"	"	4,995
stomach	"	"	27,241
colon	"	"	15,364
rectum and anus	"	"	7,325
liver and biliary passage	"	"	10,425
lungs	"	"	4,648
brain	"	"	1,284
esophagus	"	"	2,386
skin	"	"	3,404
G. U.	"	"	14,692

etc., etc.

Let us now briefly review what a different story could be told if, during that year, it could have been possible to utilize to the maximum extent our existing knowledge of preventive measures, surgery, X-ray and radium. I shall also cite some glaring examples in which the responsibility for part of this sad state of affairs rests squarely upon the shoulders of our profession.

If all of the breast cancers could have been given early and efficient treatment there would have been a saving of approximately 11,651 lives. Why were they not? I will agree with you that the great cause was the failure of the patients to seek advice and treatment, but certainly not all of the cause rests there. Literally thousands of doctors fail to examine the breasts of every female patient who comes into their offices and thus countless numbers of lumps in the breast, unknown to patients, are not discovered by the doctors when they should have been. Again, many lumps in the breasts are watched so long by doctors to see what is going to happen to them that the patients lose all chances of ever being cured. A bloody discharge from the nipple is frequently ignored by the doctor until a hopeless carcinoma of the breast has developed.

I have seen many patients treated a long time for headaches when the cause was an undiscovered cancer of the breast. Recently I was called to see a patient who had already been prepared for a brain operation. There was a beautiful neurological study and the brain tumor had been localized by the injection of air. The breasts had not been examined by the intern, the houseman, the attending doctor, the neurologist or the neurologic surgeon. There was an extensive scirrhus carcinoma of the breast which was the cause of all the trouble. This and many similar things happen all too frequently. For instance, metastatic carcinoma of the bones is frequently treated for arthritis, because the doctor has not examined and discovered a carcinoma of the breast. You are all familiar with pathologic fractures in which an X-ray sends someone hurrying to look at the breasts of his patient for the first time. I could cite other examples but they are not necessary.

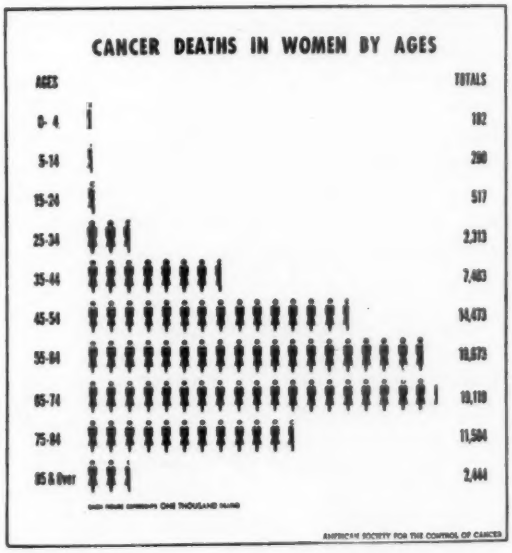

Fig. 2

What I have already said will suffice for the plea I wish to make on this occasion in connection with the entire cancer problem; which is, that a necessary step in this whole fight is to admit to ourselves and to the public our own faults, mistakes and ignorance. It seems to me only fair and honest that we should be subjected to the rightful chastisement of the public whom we are endeavoring so seriously to educate in this matter. Besides, it would make us more careful of what we do in our practice, more eager to learn what we should do. In this matter as in all others pertaining to our profession none of us should fear criticism for honest mistakes; all of us should fear the chastisement of our own consciences and of the public for carelessness, inefficiency and ignorance.

Could all of the cases of carcinoma of the cervix

have been treated early and with all the resources of our present knowledge there would have been a probable saving of 11,070 lives. Nobody can possibly estimate the number of cases which might have been prevented but it certainly is in the thousands. The relationship between chronic infections, erosions and ulcerations of the cervix and the development of carcinoma is no longer questioned. Careful inspection of the cervix and the institution of proper treatment for these precancerous lesions would have prevented the development of many, many carcinomas. Yet, how many members of our profession regard and practice inspection of the cervix as an essential part of the routine examination of a female patient?

If carcinomas of the body of the uterus had been treated early and most effectively there would have been a saving of 1,709 lives. How many of us have delayed proving the existence of an early carcinoma of the body of the uterus when the clear warning signs of menstrual irregularities and abnormal bleeding have demanded that an investigation be made?

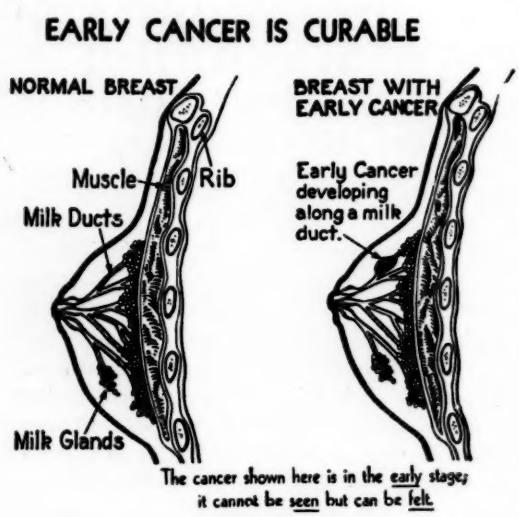
EARLY CANCER IS CURABLE
NORMAL BREAST
Muscle
Rib
Milk Ducts
Milk Glands
BREAST WITH EARLY CANCER
Early Cancer developing along a milk duct.
The cancer shown here is in the early stage; it cannot be seen but can be felt.

Fig. 3

In the case of the lip, tongue and buccal cavities there were 3,131 deaths from cancer. Early and effective radiation of these lesions should have saved perhaps 1,560 of these people. The careful prophylactic treatment of the precancerous ulcerations and other irritative lesions could probably have prevented the development of more than half the carcinomas in these sites. How many of us have failed to take seriously or to treat effectively cracks or chronically recurring ulcers of the lip, to demand that ragged teeth which are irritating the mucous membrane be properly treated or removed, to insist on the removal of infected teeth with inflamed gums or discharging sinuses, etc.? Undoubtedly there have been many missed opportunities in this field of preventive malignancy.

When it comes to malignancy of the stomach, the picture is still most discouraging, although the percentage of cures has definitely risen in the past quarter century. It is perhaps justifiable to say that over 2,000 of the 27,241 cases could have been saved by adequate surgical operations performed in the early stages of the disease. It is lamentable that in so many of these cases the diagnosis is not made until after there is no hope of a surgical cure. The perfection of the use of the gastroscope is undoubtedly going to be an added aid to the early diagnosis of carcinoma of the stomach. More effective treatment of chronic gastric ulcers will certainly prevent many carcinomas. Finally, when we as a profession consider it a challenge and an immediate obligation to prove the non-existence of malignancy in all cases of chronic indigestion, sour stomach or loss of appetite, many more patients will be given the chances of a cure by operations for early carcinomas of the stomach.

If all the cases of carcinoma of the colon had been efficiently operated upon in the early stages of the disease there would have been a saving of 7,682 lives. However, our profession is woefully lax in making an early diagnosis of this condition. Too frequently it is not suspected until there develop symptoms and signs of intestinal obstruction when the disease is then often far advanced. A change of bowel habits, indigestion, loss of weight, loss of appetite, anemia or the passing of blood, in most instances, should demand a thorough investigation many months in advance of the appearance of obtructive symptoms. At the appearance of any or all of these symptoms the use of X-rays, the proctoscope and stool examinations will lead to many early diagnoses of carcinoma of the colon and consequently the saving of countless lives by early operation.

In the case of cancer of the rectum and anus 2,930 lives could have been saved by early diagnosis and effective surgery. While we can justly blame the patients for most of this delay, we cannot by any means free ourselves from a very definite responsi-

bility in this matter. In proof of this I need ask only two questions. How many doctors in this country fail to make a rectal examination in the performance of a routine physical examination? How many patients tell annually their stories and then receive medicine for hemorrhoids without a rectal, much less a proctoscopic, examination being made? It becomes a real tragedy when you contemplate the number of lives which could be saved if our profession universally adopted the simple procedure of digital examination of the rectum. The time is not far distant when a rectal examination will not be considered adequate, for already there are many doctors who advocate and practice proctoscopic examinations in the routine examination of all their patients. And the number of precancerous lesions and early curable carcinomas which are being discovered appear more than to justify the procedure.

With our present knowledge there is little hope of reducing the incidence of deaths from carcinoma of the liver and biliary passages. The number of deaths reported from this cause was 10,425 although it is probable that in the majority of instances the primary lesion was elsewhere. We have, however, performed resections of the right lobe of the liver for primary carcinoma, on three occasions. Two patients lived for about two years and then died of recurrences, while one patient is now living six years since the operation, which included the removal of the gall-bladder and a large portion of the right lobe of the liver.

Carcinoma of the lung must definitely be removed from the class of a hopeless prognosis. During the last few years the removal of an entire lung or a major portion of it has succeeded in curing an amazing number of these people when one considers the difficulty of the surgical technique which had to be mastered.

During a year a great many primary tumors of the brain are cured or relieved by surgical operations and radiation therapy. The metastatic lesions are, of course, only a manifestation of some primary cancer in another part of the body, which could be recognized and charged with the responsibility of the death. When we realize that most tumors which arise in the brain are benign in nature, it is not too much to hope that earlier diagnosis and a greater perfection of operative and radiation technique will yield a far higher percentage of cures. Certainly it is our duty to aid by thinking of brain tumors whenever we encounter the early evidences, such as persistent headaches, unaccountable vomiting, visual disturbances, convulsions, etc.

During the past few years considerable progress has been made in the treatment of carcinoma of the esophagus. Numerous successful resections have been made of the upper and lower ends of the esophagus for carcinoma. Here, as in other fields where the situation has generally been regarded as hopeless, it now becomes our duty to make earlier diagnoses and thus help promote the further successful management of these cases, which is certain to come.

It is really not possible to estimate the possibilities of saving lives in connection with skin cancers. Theoretically the use of all our known preventive measures as well as the most efficient therapy for early cancers should have saved nearly all of the 3,404 people who died from this disease in 1936. For instance, there were approximately 700 deaths from moles which became malignant as a result of irritation or inefficient removal. The wide excision of all blue black moles or any moles which are subject to irritation or, for any other reason, show a tendency to grow, would have prevented almost all of these deaths. The careful greasing of keratosis on the hands and face (or the removal of persistent ones) would prevent many cancers from developing. The neglect of chronic ulcers or the persistence of any kind of irritation of the skin undoubtedly breeds cancer. These precancerous lesions are constantly observed by the patients and frequently by ourselves. We can no longer shrug our shoulders and charge this tremendous loss of life off to "ignorance", regardless of the fact that the public possesses the greatest share of it.

EARLY is the Watchword

for Cancer Control

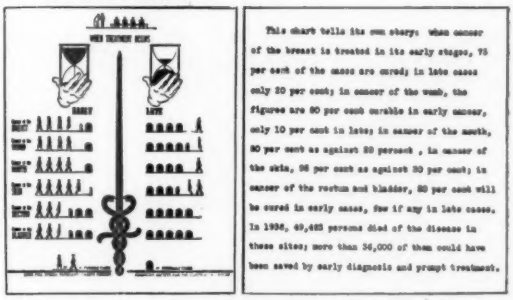
EARLY
LATE
This chart tells its own story: when cancer of the breast is treated in its early stages, 75 per cent of the cases are cured; in late cases only 20 per cent; in cancer of the womb, the figures are 80 per cent curable in early cancer, only 10 per cent in later; in cancer of the mouth, 80 per cent as against 20 percent; in cancer of the skin, 95 per cent as against 30 per cent; in cancer of the rectum and bladder, 80 per cent will be cured in early cases, few if any in late cases. In 1936, 49,485 persons died of the disease in these sites; more than 36,000 of them could have been saved by early diagnosis and prompt treatment.

Fig. 4

Of the 14,692 deaths caused by malignancy of the genito-urinary system, perhaps 2,938 could have been saved by proper preventive measures and by expert therapy in the early stages of the disease. Neglected venereal diseases and other chronic infections of this system undoubtedly lead to many of the cancers. Failure to take seriously changes in the normal function of this system, particularly the passing of blood in the urine, has tided many people over into the incurable stages of a cancer of the kidney, bladder or prostate.

Early diagnoses and effective therapy appear to be our main weapons in reducing the death rate from sarcomas. Injury is known to predispose the development of this disease. However, an effort to avoid injuries is about the only universal precaution human beings have adopted to prevent malignancies, and I fear that is generally done for other motives. Yet, it is wise to watch carefully the late consequences of a severe blow for, in so doing, you may detect an early malignancy which can be cured.

In presenting to you this brief picture of the lag between what we know to do and what is actually being done for cancer I have not been sparing, either by word or intimation, of our own professional short comings in the matter. However, the far greater responsibility for this lag rests upon the ignorance of the public. They do not know that in many, many instances cancer can be cured or prevented. They do not know that with a full layman's knowledge of this disease and perfect cooperation with our profession 500,000 cancer deaths can be prevented in the next ten years. They do not know that it is now just as logical to have an American Society for the Control of Cancer as it was to have an Anti-Tuberculosis League. They do not know what constitutes a thorough search for cancerous or precancerous lesions. They haven't learned that having cancer or talking about it constitutes no more disgrace than any other ills of man, much less than some which are popularly discussed today. They do not know that, from the standpoint of cure, it is ten times more important to detect an early cancer than it is to detect an early tuberculosis. In short, they are lacking in that knowledge which is so essential if we are to make any real headway in this fight against cancer.

Fortunately there are already under way movements which have as their aim the giving to the public such knowledge as will permit them to cooperate fully in this fight against cancer. I may mention the forms some of these movements have taken. The American Society for the Control of Cancer was organized in 1913. Its aims and activities are similar to those of the very efficient Anti-Tuberculosis League with which you are all familiar. It is directed by some of the foremost doctors, scientists and educators in this country, and it now has working organizations in every state in this union. The Women's Field Army of the American Society for the Control of Cancer is now operating in practically every state and is concerned with spreading knowledge which will be helpful in the control of cancer.

Most of our State Medical Associations have organizations for the control of cancer which function with varying degrees of efficiency. In some instances states have combined their efforts in this fight, as, for example, in the New England States and the Pacific Coast States. For educational purposes the President and many of our governors have decreed April as cancer month in which special efforts should be made to educate the public. The Cured Cancer Club was formed in 1938, largely through the efforts of Dr. Anna C. Palmer who was cured of cancer of the breast twenty-seven years ago, and bids fair to have such organizations in every State of the Union. The American Medical Association and the American College of Surgeons are helping in this educational campaign. The College of Surgeons has records of over 29,000 people who have been cured of cancer. I could cite other movements such as that of the United States Public Health Service, The National Cancer Institute, The National Advisory Cancer Council, the Press, etc., but I have given you enough to let you know that a serious effort is being made to bring the public into close partnership in this cancer problem.

As in all movements of this kind, there are differences of opinion, disagreement as to policy. For instance, some doctors fear the psychological effects such an educational campaign may have upon the public; others disagree on the amount and character of cancer knowledge which should be given them. However, no humanitarian campaigns would ever get under way if we waited for a complete agreement among doctors and laymen on anything. So long as we stick to truths there can be no real reason for disagreements, for there is no sounder policy than that man's right to live must be determined by his ability to utilize truths.

At any rate, this educational movement has begun and here are some of the present aims of that movement so far as the public is concerned:

1. It is no disgrace to have cancer; on the contrary, the fight against this disease is being hampered by the "curse of silence" which has been imposed alike by the public and the medical profession.

2. Cancer is not contagious.

3. Many, many cancers can be cured if detected early and treated thoroughly. For instance, 85 per cent of early cancers of the breast can be cured while only 15 per cent of the late ones are cured. Other similar figures could and should be given to the public.

4. Many, many cancers can be prevented by taking care of those conditions which frequently lead to cancer, notably, chronic infections and ulcerations of the cervix, chronic sores and irritations of the skin and mouth, ulcers of the stomach, etc.

5. In the early stages cancer is not painful and is rarely associated with serious disturbances in the function of the body. When a person knows he has something wrong and yet waits for the development of these symptoms, he is either ignorant or else is deliberately throwing away his chances of having a possible early cancer easily cured.

6. A knowledge of what constitutes a thorough search for cancerous and precancerous lesions. When, and if, this comes about there will be a revolution in the average doctor's survey of all new patients, for people will demand what we now know they deserve. Then the doctor who does not inspect carefully the entire body surface, examine particularly the breasts and external bodily orifices and at least asks certain questions with regard to the function of the internal organs will and should have his practice seriously suffer. The day of sitting across a desk and listening to a new patient's story and then prescribing for him without even making him remove his clothes should now be at an end rather than have it forced upon us by the pressure of public knowledge.

Many people now have annual physical examinations just as most people have their automobiles frequently examined. It is hoped that it will not be long until the individual will say "Doctor, do you find any evidence of cancer?" It will be an embarrassing question if a thorough investigation has not been made.

Willingly or unwillingly, voluntarily or involuntarily, enthusiastically or reluctantly, the medical profession is going to meet the more exacting demands born of a pubic more enlightened about the cancer problem. In the final analysis the actual responsibility of curing or preventing the enormous number of unnecessary deaths from cancer in this country is going to rest almost entirely on our shoulders. Shall we lead in this great work or shall we have our hand forced? If forced by public sentiment, there is the very serious risk of federal and state laws to accomplish the purpose. Does the medical profession want them? The answer to that question is just as debatable as the answer to the question of general state medicine, for the former is only a part of the latter. I, personally, and for the good of medicine in this country, fear them and hope that our intelligent, courageous and enthusiastic solution of the rapidly increasing public demands with respect to the cancer problem will make any attempts to secure them by laws unquestionably inadvisable. They were not necessary in the fight against tuberculosis and they need not be in this fight against cancer.

With these general remarks which I have made some of you may wish to know how you can help in this undertaking to reduce the mortality of cancer in this country. The general answer is to become actively interested in the problem. More specifically I may enumerate some of the things you can do. You may resolve:

1. To aid the Women's Field Army and the American Society for the Control of Cancer in your community and your State in their campaign to educate the public regarding cancer.

2. To examine and question all new patients, as has been suggested, in order to exclude the probability of a cancer; and, likewise, to examine all old patients at least once a year.

3. To encourage people to have annual physical examinations.

4. To help dispel the fear of cancer by telling people it can be cured if treated early.

5. To teach people that there is no more disgrace in having cancer than in having a broken leg, and to encourage people to talk about it in the same way.

6. To get your cured cancer cases to enroll in the Cured Cancer Club of your State.

7. To think of cancer when patients complain of indigestion, have unexplainable anemia or unaccountable loss of weight.

8. To make sure that cancer is not the cause when there is abnormal bleeding from any of the orifices of the human body.

9. To treat more seriously precancerous lesions, particularly those of the skin, mouth and cervix.

10. To regard all lumps in the breast or bloody discharges from the nipple as cancer and act accordingly until they are proven otherwise.

11. To remove with a wide margin of healthy skin all smooth, blue black moles and any others which may tend to grow or are subjected to traumatization.

12. To distrust the untrained and incompetent doctor who has purchased a few milligrams of radium and is using it ineffectively and improperly.

13. To learn from The American College of Surgeons, The American Society for the Control of Cancer or from the representative of your Women's Field Army where the approved cancer clinics are located in your state and to make use of them immediately, *especially for your charity patients*, whenever you suspect the existence of cancer, but do not have access to the diagnostic facilities which will give you a positive answer. There are now in the United States over 272 such approved clinics.

14. To demand that your State Health Board establish a pathologic laboratory where specimens might be sent for diagnosis when there exist no local facilities for such purposes.

15. To encourage your local and state governments to provide funds so that your indigent cancer cases may be sent to such approved cancer clinics for diagnosis and treatment.

16. To encourage your state and local medical societies to organize cancer control boards, preferably in conjunction with the health boards, the Women's Field Army, Community Chest organizations and interested laymen.

17. To provide for frequent lectures on cancer before your local medical society and to help secure speakers for lay groups, clubs and societies.

18. To aid, whenever possible, in the collection of money for this fight against cancer.

19. To help improve the facilities for treating cancer in your own community.

20. To join the Women's Field Army and The American Society for the Control of Cancer. To familiarize yourself with what they are doing, and to call on them for advice and help whenever you think they might be of any assistance.

21. Finally, to believe the students of this problem when they tell you that a complete utilization of our existing knowledge of cancer by the medical profession and the public would save almost half of the 150,000 annual cancer deaths. This is comparable to what has happened to tuberculosis and pneumonia and is a direct challenge to every American citizen.

I could provide you with many other resolutions, but I fear that I have already exhausted your patience. I want to close by reading part of an editorial which was written by Francis Carter Wood and published in the *Quarterly Review* for April, 1939:

"It is difficult to judge the benefits of education in a large city like New York, but easy to see them in a small country town. The writer knows of a town where thirty years ago no cancer patients were cured because none of them believed that the disease was curable, and this pessimistic attitude was shared by the local physicians. A young surgeon happened to come to town fresh from a metropolitan hospital interneship and was horrified at the situation. He called upon some of his late teachers to come to talk to the County Medical Society, and material concerning cancer was published in the local newspapers; the Chamber of Commerce permitted a doctor to talk on the subject of the curability of cancer; a public-spirited citizen made a will leaving a considerable sum of money for the construction of a hospital; the physicians of the village were urged by the young surgeon to attend the State Medical Society meetings and to go to Boston to see some of the work of the hospitals there. People began to talk about cancer and to be interested in it and material furnished by The American Society for the Control of Cancer was distributed by the Women's Club. The town became cancer conscious.

"The man who had made a will giving money for the hospital died and his money built an institution, ample enough to care for all types of patients. In the meantime the young surgeon had, by visiting hospitals, by reading, and by contact with surgical sections of the State Medical Society, learned something of how to handle cancer patients. Under advice he purchased a small quantity of radium to treat cases of cancer of the cervix and tumors of the skin. He saw to it that there was a good X-ray equipment in the hospital run by a competent technician. He ar-

ranged to have the tumors he removed diagnosed by an expert at one of the Boston pathological laboratories. Today, after thirty years, the treatment of cancer patients is just as efficient in this little country hospital as in large metropolitan institutes where they pride themselves on their competence. When the young surgeon, now getting a bit gray, finds a patient with a malignant lesion beyond his capacity to handle, he sends such a patient to the surgical specialists in either Boston or New York, having learned that cancer is a transportable disease.

"Education alone has accomplished all this."

CARE OF THE SKIN OF THE NEW BORN. A PRELIMINARY REPORT.*

JAMES M. WHITFIELD, M.D.,
HERMAN W. FARBER, M.D.,
Richmond, Virginia.

When one considers the many changes thrust suddenly upon the new born infant at delivery, it is hard to appreciate the remarkable adaptability of the child to its new environment. Protected as it has been from every external influence and supplied by its mother with every need for many months, it now enters a cold strange world wherein it must live or die, depending largely upon its own capabilities. One of the first things which happens is that the soft, downy skin is immediately subjected to all manner of external influences. These result in changes which may be roughly divided into two groups. The first includes those irritations that usually appear in locations commonly affected by heat and pressure, i.e., buttocks, arm pits, back, etc. It is of course obvious that heat and pressure are not entirely responsible since such areas as the abdomen and chest are frequently involved. This type of pathology appears as erythematous macular areas which may be widely scattered and should spontaneously disappear in from four to five days. We also have intertriginous erythematous papules in the folds of the skin for which no treatment other than mechanical protection is required.

The second group includes the pyodermas, usually of infectious origin, and it is with these that the study herein reported is principally concerned. Almost everyone has witnessed the occasional outbreaks of skin infection spreading rapidly among the infants in the nursery, and even the laity is well aware of the occasional occurrence of impetigo in our modern hospitals. It has happened that patients have objected to hospitalization solely because of the fear of infection. The most assiduous efforts and meticulous care have apparently failed to prevent infection from without and cross infection from within the nursery. The use of antiseptic salves, oils, and special soaps, all have proved of little value in preventing, aborting, or terminating these troublesome conditions.

In July, 1937, a series of 3,500 cases was reported by Sanford,[1] of Chicago, wherein he observed several methods of skin care. From 1930 to 1935, ammoninated mercury ointment, olive oil, and various commercial baby oils were regularly employed in his routine. From 1935 to 1936, no preparations of any kind were used, and he concluded that the smallest number of skin infections occurred during the time when the skin was left untouched. In May, 1938, Smith,[2] of Portland, Oregon, reported a series of 1,734 nurslings in whom the vernix was not removed nor were the babies oiled or bathed. Two cases of pyoderma were encountered. Rodda and Stoesser[3] studied 205 cases in which 103 were bathed regularly and 102 were not treated in anyway until the tenth day. They felt that the second group was equally free from pyodermic infection as the control group.

RESULT

At this time we wish to report a series of 186 infants cared for on one of our services in a local hospital. While the number is small, it is hoped that this preliminary consideration may be of some significance. The study began on April 1, 1939, and continued until December 10, 1939. At first only an occasional clinic patient was so treated, but as our confidence and experience increased, we decided to use the dry technique (herein described) as the routine care for the nursery. Not a single case in the entire number of 186 infants showed any evidence of infectious pyoderma. We did not see a single

*Read before the Southside Virginia Medical Society, at Petersburg, December 12, 1939.

pustule in the whole group. There were twelve cases which experienced mild irritations and reddening of the skin. Where these appeared, of intertriginous type, a bland oil or ointment proved sufficient. In all other cases no treatment was required. It is to be stressed that the simplicity and ease with which this method may be followed, make it of equal value in the modern maternity hospital as well as in the most humble dwelling.

TECHNIQUE

The technique is simply not to clean the baby. Excess blood, meconium, and vaginal secretions are merely wiped off with a sterile cotton pledget and that is all. The skin is neither bathed nor oiled at any time until the tenth day. Should the patient leave the hospital before this time, we allow a simple bath with soap and water to be given as a demonstration for the mother before discharge. The clothing is changed every day and warm water is used to cleanse the buttocks following each stool. The nurses are instructed particularly to leave the vernix undisturbed. The only areas to be watched are the groin and axillae because if the vernix does not "dry" in these locations, irritation may occur. Should this happen a small amount of oil locally applied is all that is needed. When this method of care was first instituted great skepticism was expressed as to the conditions which might result. It was found, however, that within twelve hours, a truly remarkable change had appeared. The vernix had vanished, probably being absorbed into the clothing. To quote Dr. Smith, "It would appear that if this infant who looks as if he has been rescued from a sewer, were not immediately cleaned up, he would smell like a dead fish in twenty-four hours. What a contrast to behold him a few hours later looking so fresh and clean." Indeed there is nothing dirty about these babies. The skin becomes clean and pink, and has remained so during the period of our observation. Frequently a desquamation or fine scaling at about the fourth or fifth day will be noted, but the underlying skin will be found in excellent condition. It has often happened that these babies have been turned over to pediatricians without making any remarks about our technique and we have been gratified to hear no unfavorable criticism.

COMMENT

The rationale of this somewhat startling procedure is in reality an application of nature's method. The vernix caseosa covering the baby is in fact a protection, and is often found adhering quite closely. Indeed, considerable difficulty may be experienced in removing it. We believe the vernix should be allowed to remain; certainly we have no better substitute. In so far as vegetable or mineral oils are concerned they can hardly improve on nature. Even the finest soaps are irritating to the tender and delicate skin, and it is only too well known that water may exert a harmful effect. Ammoniated mercury has been worthless in preventing dermatitis and its use has been the cause of serious complications.

Finally, it must be remembered that (1) "as long as doctors and nurses have hands, they will irritate the infant's skin and occasionally carry infection." When this infection is superimposed upon the tender surface traumatized and abraded by attempts to remove the vernix, and thoroughly "clean" the baby, it is hardly surprising that inflammation may result.

We are of the opinion, therefore, that the skin of the new born infant, if left alone and not injured by rubbing and washing with various preparations, will tend to clear itself and may even develop an immunity to the outside forces which affect it. Certainly the skins of these infants appear to be in much better condition, more pink and healthy, than are those washed with oil or soap and water.

CONCLUSIONS

1. In a review of the literature of the last five years we have found only three articles relating to this subject.

2. A series of 186 infants treated by the dry technique above described is herewith reported.

3. No cases of infectious pyoderma were encountered in the entire series.

4. In slightly less than 7 per cent of these cases, non-infectious irritations of the skin occurred.

The authors wish to express their appreciation of the cooperation and kindness of Miss D. E. Cole and Mrs. Howard Jones, supervisors of the nursery at the Retreat for the Sick Hospital.

REFERENCES

1. Sanford: Care of Skin of the Newborn, *Jour. Pediatrics*, Vol. 11, July, 1937, pp. 68-76.
2. Smith, L. Howard: *Jour. Pediatrics*, May, 1938, pp. 603-604.
3. Rodda, F. C., and Stoesser, A. V.: *Wis. Medical Jour.*, Vol. 37, July, 1938, pp. 547-551.

Professional Building.

THE USE OF THE COW-HORN PEG IN FRACTURES OF THE NECK OF THE FEMUR—WITH SPECIAL REFERENCE TO TYPES OF FRACTURES SUITABLE FOR THE USE OF THE PEG AND METHOD EMPLOYED IN INTRODUCING SAME.*

PHILIP W. BOYD, M.D., F.A.C.S.,
Winchester, Virginia.

Well do we know the high mortality which followed the older methods of treating these elderly people. (Most of these fractures occur in older people.) To keep them in bed with extension appliances or plaster spicas certainly increases the mortality and gives much poorer results than some type of pinning.

I am not opposing the use of the steel pin. Those who use it get excellent results and, no doubt, prefer the steel pin to the cow-horn peg.

Horn material is adapted for many uses in bone surgery. It can be formed into slabs, plates, straight or curved rods, and nails. It is easily sterilized, is strong, and is slowly absorbed, non-irritating and a stimulant to periosteal and endosteal growth. The specimens are sterilized by thirity-minute boiling—preferably one hour of preliminary boiling is advised.

Since 1935 we have done forty-two horn pegs for fractured neck of the femur without a single infection and most satisfactory results.

The horn peg is made and obtained from the Horn Peg Specialty Company, of Princeton, Illinois. They are made from the cow's horn and the sizes range from one to ten, sizes varying one-sixteenth of an inch.

For the average sized person the size of the peg to use would be number five which would measure five-sixteenth of an inch. The size of the peg to be used must be gauged to the size of the patient's bones.

TYPE OF FRACTURES SUITABLE

1. A simple fracture of the neck.
2. Simple intertrochanteric fractures. This is the type best suited for pinning.

A comminuted fracture embracing the neck and head of the bone and a comminuted fracture of the upper end of the femur, especially the comminuted intertrochanteric fracture, are not suitable for pinning. The base of the pins must have a firm base to rest upon.

*Read before the seventieth annual session of the Medical Society of Virginia, at Richmond, Va., October 3-5, 1939.

TECHNIQUE

Most patients can be operated upon under local anesthesia. We give one and one-half grains of Nembutol and one-sixth grain of morphia thirty minutes before the operation. The patient is placed upon the Hawley table to secure extension and to reduce the fracture; then an X-ray is taken, using the bed-side unit, to assure that the position is satisfactory. While the film is being developed the field of operation is prepared and anesthetized with one-half of 1 per cent novocain solution. If the bones are in good alignment, a longitudinal incision is then made about three inches long on the outer surface of the thigh, starting just above the greater trochanter, dividing all soft tissues down to the bone. By placing the thumb on the anterior surface and the index finger on the posterior surface of the fractured neck an excellent idea can be gotten as to the direction the bone is in and also as to the thickness of the neck. This is readily done by blunt dissection with the finger. Then at a point on the shaft of the femur just below the greater trochanter drive a Kirschner wire with brace and bit in an upward and forward direction, going through the neck and on into the head of the femur. Stop at this point and get a second X-ray to see if the wire is in the right position. This requires a wait of about ten to fifteen minutes. If the pin is in good position, then, with a Cox reamer threaded over the Kirschner wire, the channel for the pin is reamed out, going well up into the head. The horn peg is then driven home, excess of pin cut off flush with the shaft of the femur, and the wound is then closed and a sterile dressing applied. No spica. No plaster.

These patients are allowed out of bed in a wheel chair on the third or fourth day and required to be out of bed for several hours each day. The younger and more active ones can use crutches within two weeks, and are encouraged to do so. No weight is allowed on this leg for about eight weeks.

It is certainly a contrast to see these patients up

and about within one week, and not lying in bed with traction appliances and plaster spicas on them. The mortality is greatly reduced.

Some complications arising in a few of our cases will be shown by lantern slides.

I have briefly indicated the method of treating fractures of the hip by use of the cow-horn peg. Only certain types of hip fractures should be treated in this manner. I have indicated some of the difficulties in getting the steel wire in the proper direction and the distance it should pass into the head of the femur. Some of the complications found in other methods of treating hip fractures occur in this method, such as re-fracture of the hip due to accidents in moving the patient, as well as to absorption of bone due to disturbance in nutrition of the head and neck of the femur, which could have occurred at the time of the accident. I feel satisfied with the results I have obtained in treating a certain group of hip fractures by this method.

DISCUSSION

DR. JAMES T. TUCKER, Richmond:

Dr. Boyd has presented to us a very excellent paper and his dexterity in the use of cow horn is to be greatly commended. His success in the cases presented deserves our congratulations. To every man who knows his tools and materials and meets with such success we can say naught but "well done".

When Dr. Boyd asked me to discuss his essay, I accepted with the explanation that I had had no experience with the use of cow horn and that my comments would have to be based on literature and my experience with the Smith-Petersen nail. On this basis I accepted.

FOWLER—*Ill. Med. Journal,* January, 1934:

1. A new, simple, efficient method of internal fixation of fractures.

2. A new and apparently better material for internal fixation of fractures has been found in cow horn.

3. Callus and bony development appear to be stimulated by horn.

4. Horn is gradually absorbed, as indicated by dog experiments.

SIEGLING AND FAHEY—*Bone and Joint Journal,* April, 1936:

1. Cow's horn is relatively non-absorbable and the tissues react to it as they would to other non-absorbable material.

2. Cow's horn appears not to stimulate osteogenesis.

CARRELL—*Surgery, Gynecology and Obstetrics,* 1936:

1. Horn material is adapted for many uses in bone surgery.

2. It can be formed into slabs, plates, straight or curved rods and nails.

3. It has a high tensile strength and yet enough flexibility for easy application.

4. Specimens are sterilized in thirty minutes of boiling.

5. When placed in bone tissue, absorption is very slow, probably eight to twelve months. It is tolerated by the tissue as a harmless foreign body.

6. The release of cystein is so slow that it is of doubtful value in stimulating bone repair. The fracture will be united before the cystein is released, or, in case of delayed union, any good effect which the cystein might have would probably be over-balanced by the other factors which have been the cause of the delayed union.

From the foregoing observations we shall have to assume that cow horn is only of value as a fixative agent. How, then, does it stand up by other materials that have been used? Let us see.

It is interesting to cite the findings of the American Academy of Orthopedic Surgeons' report on internal fixation of fracture of the neck of the femur at the January, 1939, meeting. They made a survey of all such fractures fixed by internal fixation, irrespective of the type of material used. Of some 1,400 cases reported over two years' duration, 1,140 were chosen as authentic. Of these 1,140, 87 per cent were nailed and of the 87 per cent nailed, 85 per cent or 843 cases united.

The type of fixation best suited was the Smith-Petersen vitalium three flanged nail. The secret of this form of fixation was the contact of bone to nail, the surface contact being five times greater than any other type of fixation with minimum destruction of cancellous bone along the path in which the nail is inserted. The conclusion was that the Smith-Petersen nail is the method of choice throughout the orthopedic circles of the United States.

Even so, Dr. Boyd has met with great success in his use of cow horn and, though my remarks are not all in accord, I hope that they will not daunt his enthusiasm and continued success in his work.

DR. BOYD, closing the discussion: I have found it holds these bones quite well. I have used it in the small bones of the hand sometimes, without any difficulty in getting them to stay there; used them for the clavicle or any long bone you wish to use it on.

These pegs can be made by anyone if you want to; just get a cow's horn and a hack-saw and an emery wheel and you can finish them in any size, fashion or form. They are also made like nails and you can drive your pins through. I find they do real well and I have found in the fixation of these hip joints that my results have been much better than using the other methods like the traction splint and the spica, etc. Not only that, but the results have been much better and the old people you might expect to die from pneumonia from being kept in bed are up in a few days and about. The mortality is certainly much less, they are much easier to nurse, and they are much happier. The thought just struck me that a cow's horn would hold, so one day I just happened to use it and the result has been good. Dr. Tucker just said the tools you work with and are accustomed to, you better keep using, and I agree with him. I expect to hold on to this until I find something better.

ENDOCRINOLOGY BRIEFS.

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INTRODUCTION

The field of endocrinology is a new and sparsely cultivated one. Its boundaries have not yet been determined nor the character of its soil analyzed. For these reasons the variety of products of its cultivation have hardly been visualized by the profession's most vivid imagination. The pioneer work of clearing the timber of unknown facts has been begun, and new tools for the work developed. This is one of the frontiers of medicine and challenges the profession's imagination, skill and critical judgment.

There are approximately sixteen well known hormones, which fact of itself allows some 43,000,000 combinations of physiological actions. There is no uniglandular disturbance, but all disturbances are multiglandular. This in part explains the nebulous state of our present knowledge of the endocrine glands and gives us an understanding of the difficulties facing investigators in their work of unraveling the problems of endocrine therapy.

From time to time we will attempt to analyze the known facts and mention a few of the hypothetical problems in diagnosis and therapy of the endocrine diseases.

THE ADRENAL GLANDS

The adrenal glands were discovered by Eustachius in 1563. However, not until 1855 was their importance realized by Addison who described the syndrome bearing his name.

The two morphological and embryological parts of the adrenal gland are cortex and medulla. The cortex arises from the mesothelium of the Wolffian ridge from which the ovary and testis also spring. The medulla, on the other hand, arises from the intraneural ectoderm which gives rise to the nerve cells of the sympathetic ganglion.

The removal of both adrenal glands results in death. The cortex, not the medulla, is essential to life.

THE ADRENAL MEDULLA

The adrenal medulla, being intimately associated with the involuntary nervous system, is under partial control of centers in the hypothalamic region rather than humoral control of the pituitary gland. Its single hormone, epinephrine (adrenalin), is the instigator of the emergency mechanism of the body and causes the following physiological responses:

1. Vasoconstriction with a tendency to elevate the blood pressure.
2. Bronchodilatation.
3. Acceleration of the pulse.
4. Increased speed of blood coagulation.
5. Increased activity of intestinal muscle.
6. Increased glycogenesis (decreased combustion of dextrose) in liver and muscle.

Paroxysmal hypertension is the only clinical syndrome of over-activity of the medulla and this results from medullary tumor called chromaffinoma, pheochromocytoma or paraganglioma. The syndrome is characterized by attacks of discomfort with pallor, palpitation, headache, dizziness, nausea, tremor, epigastric pain, salivation, and acute hypertension. Severe renal changes indistinguishable from nephrosclerosis occur and death results from uremia or vascular accident. Operative removal has been the only effective treatment. The adrenalin content of tumors studied by Swiss investigators was found to be ten to thirty-five times that of normal adrenal tissue. No syndrome of epinephrine deficit has been recognized and reported.

THERAPY

In allergy epinephrine has been the bulwark of symptomatic relief. Used locally in 1:1000 solution, the symptoms incident to swollen membranes of nose, pharynx and eyes are quickly assuaged—at least temporarily. Asthma responds to 3 to 15 minims 1:1000 solution of adrenalin hypodermically. Its beneficial effects are of short duration. To obviate this, epinephrine in peanut oil has recently been placed on the market and preliminary reports of its use are encouraging. The oil vehicle permits prolonged gradual absorption. Other allergic states such as angioneurotic edema, urticaria, serum sickness and anaphylactic shock respond well to epinephrine. It is useful in the control of superficial blood oozing, limitation of absorption of local anesthetics and in relief of hypoglycemia.

Certain individuals are sensitive to epinephrine and caution in its use should be observed by giving

doses of 5 minims or less until sensitivity is determined. This sensitivity is increased in thyrotoxicosis.

Epinephrine is of no value orally and may indeed upset the stomach if included in oral medication. Intravenous use is dangerous; however, intracardiac injection is used for emergencies where cardiac action has been temporarily stilled by electric shock, drowning, or during operations.

THE ADRENAL CORTEX

The adrenal cortex depends upon the anterior pituitary gland for its preservation and stimulus to function. Complete cortical atrophy with fatal results occurs in absence of the pituitary adrenotropic substance. In 1929 the first potent extract containing cortical hormone was prepared. The known actions of this hormone or group of hormones are as follows:

1. To maintain normal sodium concentration of the blood and at the same time to prevent unduly high potassium concentration.
2. To assist the liver in maintaining glycogen stores and to convert protein to dextrose.
3. To assist in the maintenance of muscular endurance.
4. To maintain normal circulating blood volume.
5. To maintain the sustained ability to resist certain types of infection.
6. To act in other catalytic processes not yet clearly defined or understood.

The deficiency or complete absence of the cortical hormone results in the syndrome, Addison's disease, characterized by asthenia, hypotension, gastrointestinal disturbances, pigmentation, anemia, toxemia, renal failure and death. Functional deficit of the adrenal cortex occurring in diphtheria, pneumonia and shock presumably occurs and treatment by substitution of the cortical hormone is known to be helpful.

The therapy of Addison's disease is still not satisfactory, but, through the brilliant work of Thorn and others, encouraging results from a new principle of administration have been reported. Recently the chemical structure of the cortical hormone was found to be desoxy-corticosterone and it is now synthetically prepared. Intramuscular injections of desoxy-corticosterone acetate in oil, 3 mgm. to 5 mgm. daily, produce striking improvement in patients with Addison's disease. After a maintenance dosage has been attained pellets of this compound are buried beneath the subcutaneous tissue of the patient's back, thus affording a constant supply of the hormone which lasts from three to six months. The pellets may then be replaced by new ones. The method has opened up possibilities for the administration of other hormones.

Adrenal Cortex Extract of Upjohn or Wilson, and Eschatin of Parke Davis and Company are potent. Oral tablets as Cortisorbate pills of Schieffelin and Cortalex tablets of Upjohn are potent and useful in milder cases of cortical insufficiency. Desoxy-corticosterone acetate is marketed by Ciba as Percorten. The pellets have not been made available commercially as yet.

Tumors of the adrenal cortex are not well defined in their origin, and are frequently associated with similar tumors of the pituitary, thymus or ovary. Cushing's syndrome, once thought pituitary in origin, has now been found occurring with certain adrenal cortex tumors. Sexual reversal and other bizarre endocrine disturbances result. Early diagnosis and surgical removal offer encouraging results.

1000 West Grace Street,

EDITOR'S NOTE: This is the first of a series of brief summaries of our present knowledge of a rapidly changing field of diagnosis and therapy.

ROENTGEN THERAPY OF CERTAIN INFECTIONS AND INFLAMMATIONS.*

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Within the past few years, the value of roentgen therapy in the treatment of certain acute and chronic inflammatory conditions has been thoroughly proved and established. At present it is recognized as a potent ally of the physician and surgeon in the successful management of various types of infections and inflammations. Indeed, in some of these conditions it acts almost as a specific and the results are quite dramatic. This is especially true in the acute infections, where roentgen therapy often causes

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prompt relief of pain and a rapid change from a virulent, spreading inflammation to a minor, localized suppuration. However, despite the favorable experimental and clinical observations, this mode of therapy has not been accorded the widespread use which it merits. This is due to several factors, among which may be mentioned skepticism and disbelief on the part of the medical profession, which may be aroused by the varied and unsatisfactory explanations of the favorable mode of action of irradiation on inflammatory lesions; the fear that its use might result in permanent damage to the skin and other structures; and, lastly, and most important, there is rather generalized lack of knowledge among physicians and surgeons regarding the favorable action of irradiation on acute and chronic infections.

With this thought in mind, I will attempt to discuss the subject more from a general rather than a special or technical viewpoint, as you represent all of the specialties as well as general medicine and surgery.

The treatment of inflammatory processes with roentgen rays dates back to 1902 and 1903, when it was observed that certain types of infections seemed to improve following the relatively long exposure of the affected part to roentgen rays for purposes of diagnosis. Since this time a great deal has been written on the subject, both on this continent and abroad. Most of the research work bearing on the subject has been done abroad, especially in Germany. Numerous and exhaustive studies of the action of irradiation on living tissues and cellular elements has resulted in the present well-grounded scientific concept of the mechanism through which irradiation operates in various pathological states. Experience in this field of therapy extending over a period of years has shown conclusively that roentgen irradiation applied early will promptly relieve pain, reduce fever, and gradually bring about the disappearance of the inflammatory and suppurative process.

Pyogenic infections in general are characterized by varying degrees of leucocytic infiltrations; leucocytes, chiefly lymphocytes, polymorphonuclear cells, and eosinophils accumulating around one or more clusters of bacteria. This leucocytic regimentation appears to be nature's method of intensifying the production of antibodies. Hyperemia is an additional factor which facilitates the mobilization and regimentation of the leucocytes. Experiments on animals and human beings have shown that each type of cell has a specific degree of radiosensitivity and that lymphocytes are most radiosensitive. Heineke, and later Warthin, showed experimentally that as early as fifteen minutes following roentgen therapy, lymphocytes undergo nuclear disintegration which continues for several days. Warthin has demonstrated another important action of roentgen irradiation in inflammatory processes, namely, the promotion of phagocytosis. He has shown microscopically that phagocytosis of broken nuclear chromatin particles is most active following the irradiation, and continues for several days until the lymphocytes are almost entirely destroyed. The polymorphonuclears and eosinophils undergo disintegration somewhat less rapidly, but continue for two or three days. There are some changes in certain of the other cellular elements, but where small doses of irradiation are used, there is not enough definite change for this to be accurately demonstrated. Desjardins has shown that with the disintegration of lymphocytes, pressure is relieved and, with the relief of pressure, pain is relieved.

At first thought, it would not seem logical to destroy leucocytes which are acting as a protective mechanism against the infective process. On the other hand, the early destruction of some of these cells must more rapidly provide adequate amounts of the vital, or protective substances, enzymes, antibodies, and other unknown principles, which are contained within the leucocytes for defensive purposes and which promote autolysis and liquefaction by becoming mixed with the tissue fluids in the surrounding tissue spaces. The protective substances thus liberated are more readily available for defensive purposes than when contained in the original intact white blood cells. At the same time, there is an increase in phagocytosis by the reticular cells, which become macrophages. This cellular destruction and increased phagocytosis represent the effect on the body to exposure to the roentgen rays in localized pyogenic infections and probably explains the universal favorable action of this mode of therapy. As a rule, the more marked the lymphocytic infiltration in the tissues, the quicker and more marked the response to irradiation will be, and it is for this reason that the effect of irradiation is somewhat different in different types of infections and also varies as to the stage of development of the infective process. For example, radiotherapy is most beneficial during the infiltrative stage of infections and com-

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paratively less beneficial during the suppurative stage.

In inflammations that are not circumscribed and in which leucocytic infiltration is comparatively slight, and the affected area is hyperemic and the vessels are congested, the exposure of such an area to small, repeated doses of irradiation undoubtedly causes the disintegration of many leucocytes and the liberation of protective substances into the circulating blood and throughout the tissue spaces. This makes possible a biological defensive reaction similar to that in more localized inflammations.

So, generally speaking, the response of inflammatory lesions to irradiation is based on the type of pathology present. Lesions with considerable leucocytic infiltration and small amounts of connective tissue respond more promptly than lesions with much connective tissue and a relatively small number of leucocytes. It is necessary to bear this in mind in treating chronic inflammations. Depending on their character and on the etiologic factors which produce them, such lesions are characterized by varying degrees of leucocytic infiltration and connective tissue proliferation, the latter usually predominating. While the leucocytic infiltration in such chronic lesions is readily susceptible to destruction or diminution from irradiation, the connective tissue elements are comparatively resistant to such treatment. In view of this fact, the clinical effect of irradiation in chronic inflammations is, therefore, as a rule, relatively slow, and maximum improvement or cure requires repeated treatments at varying intervals. This conclusion is in complete agreement with the experimental evidence and the recorded clinical observations.

Many varieties of acute inflammatory processes yield rapidly to small doses of roentgen rays. As a rule, the more acute the inflammatory condition, the smaller the dose necessary to produce the desired effect. With such small doses, there can be no question of cutaneous, or systemic reaction; therefore, patients quite ill can be treated without danger. In many cases a single treatment is sufficient, but it may be necessary to repeat the treatment one or more times.

In the treatment of chronic inflammatory processes, as a general rule, the dose of roentgen rays must be larger than the doses employed for acute inflammations, and the treatment should be repeated at intervals for some time. The treatment of chronic inflammatory lesions with maximal or tissue tolerance doses is, with few exceptions, bad practice and should be avoided. Since treatments must be repeated at intervals for varying periods, the use of large doses of irradiation may lead to undesirable results and may cause the original lesions to increase in severity rather than to improve.

The acute infectious diseases of childhood are not included in this discussion, although it is worthy of note that certain complications of whooping cough have been treated very successfully by X-ray. In many cases, in both adults and children, the spasmodic coughing is due to pressure irritation on the bronchi, and, pathologically, numerous enlarged lymph nodes may be found in the mediastinum. Roentgen therapy offers a means of rapidly relieving this condition in a painless, harmless manner. High voltage X-rays are used in 100-150 r doses on the anterior and posterior mediastinal areas, alternately, once a week, for three to four treatments. In many cases, the condition is relieved with one or two treatments.

We will also exclude those infections for which a definite immunizing agent, or a specific vaccine or antitoxin has been found.

Among the acute and chronic inflammatory conditions in which the therapeutic value of roentgen irradiation has been definitely established are erysipelas, furuncles, carbuncles, cellulitis, localized infections on and about the face and extremities, infections resulting from human and animal bites, acute adenitis, lymphangitis, parotitis, post-operative wound infections and inflammations, gas bacillus infection (gas gangrene), paronychia, unresolved pneumonia, actinomycosis, blastomycosis, epidermophytosis, pruritus vulva and ani, acute and chronic otitis media, and subacute and chronic nasal sinusitis.

The optimum time for the treatment of the acute conditions is when the first evidence of the infection is established, such as pain, swelling, redness, tenderness, fever, leucocytosis, lymphangitis, adenitis, or other indications that natural forces are reacting against the bacterial invasion. In other words, the inflammatory process must be established before irradiation is effected.

When treated in the early state, a large percentage of the suppurative lesions disappear without suppurating, pulmonary consolidations resolve early, lymphangitis and lymphadenitis subside spontaneously, temperature falls by crisis or rapid lysis and other signs go more gradually. Therefore, the treat-

ment is most effective when other methods of treatment are least effective. It is painless and does not interfere with the activities of the patient. Pain is often relieved in a short time, but sometimes the relief of pain may be preceded by a brief period of exacerbation.

Irradiation is practically a specific for erysipelas as long as the lesion is fairly well localized. Small early lesions nearly always disappear within twenty-four hours after treatment, requiring no additional therapy. Large infected areas usually show an early limiting of the infection with a gradual disappearance of the condition within a few days. Where large uneven areas of the body surface are involved, one must be careful to see that the entire area with surrounding peripheral edges is treated.

The rationale underlying the treatment of erysipelas is one which is accepted with regard to all infectious processes; namely, the liberation of endotoxins from X-ray destruction of the lymphocytes. It is well established that the earlier treatment is begun, the chances for prompt response become greater. The dose required is small, from 100-150 r (in air) with 100-120 K. V. P. and 0.5-1.0 mm. Al. filter. In administering the treatment, care should be taken to treat fairly well beyond the apparent border of the involved area to prevent further streptococcic invasion of the corium.

A furuncle, or carbuncle, may retrogress entirely without the formation of a central area of necrosis after a single treatment, provided that it is administered early enough. If not seen until a more advanced stage has been reached, suppuration and separation of the necrotic area is hastened considerably. The tendency which boils show to recur in special situations, especially the back of the neck, and the buttocks, disappears after proper irradiation as though a local tissue immunity had been established.

In the treatment of carbuncles, whether or not they are associated with diabetes, the lesion should be first treated with irradiation, followed by the indicated local or general treatment. Due to the extensive nature of the process, they do not always respond as readily as furuncles, but when treated in the early stages, they rapidly localize, become less painful, cease to extend, and suppuration and drainage increases. During the course of the X-ray treatment, the usual surgical measures as heat and wet dressings are advised and when fluctuation becomes evident, incision and drainage should be performed.

The technic employed in treating furuncles and carbuncles varies according to the size and depth of the lesion and the stage of the process. Every case is more or less an individual problem. As a rule, however, roentgen rays of 100-140 K. V. P. with 1-4 mm. Al. filter are employed, depending on the size and depth of the lesion. From 150-300 r may be applied as the initial dose and from 100-150 r in a day or two and repeated once or twice, if the proper reaction does not occur. The larger and more extensive lesions may be treated with higher voltage and filtration (200 K. V. P. with .5 mm. Cu. plus 1.0 mm. Al. filter).

Carbuncles in the later stages are best treated with relatively small doses repeated at short intervals, if necessary.

Even if irradiation is not given in the early stage in localized suppurative processes, it becomes the most helpful of all adjuncts to surgery. Even if suppuration has taken place, it is well to give irradiation prior to incision and wait until the lesion becomes more localized and superficial, in just the same way that you have always applied heat, or poultices and waited until the abscess has come to a head. In fact, irradiation, if available, should with few exceptions replace poulticing in any form. This is particularly true of the infection that results from a needle or instrument puncture of a finger of the nurse or surgeon. A little irradiation may save a phalanx, finger, hand, arm, or life, depending upon the stage at which the irradiation is given, and the relief from pain in these conditions is almost invariably more complete than with full doses of morphine.

Hodges states that one of the greatest fields of usefulness of the roentgen ray in the treatment of potentially serious infections is in apparently more or less insignificant lesions which occur on the upper lip, around, or within the nose, around the eyes and to a lesser extent on the extremities. Frequently, the primary portal of entry of the infection may be nothing more than a slight abrasion, cut, bruise, or pimple and in some cases no portal of entry or etiologic factor can be determined. Where the infection is of sufficient virulence, there is a rapid lymphangitis and thrombophlebitis. Facial lesions, if ordinary methods of treatment are employed, not infrequently lead early to extension to the vessels of the brain and a fatal termination. The extremity portals of infection, if not controlled, frequently lead to a general

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septicemia. The entire medical profession must realize the possible seriousness of this type of infection, if any headway is to be made in its treatment. Regardless of the insignificance of the primary portal of entry, when evidence of the slightest spread of the infection to the surrounding tissues is noticed, 100-150 r low voltage lightly filtered roentgen rays should be applied. As a rule, there is a rapid walling off of the infection, the probability of a serious complication is lessened and the reparative process is hastened. The lesions either point rapidly and suppurate, or gradually subside without evidence of drainage.

Lymphangitis, as a rule, regresses and subsides promptly following small doses of irradiation. The painful red streaks that one sees sometimes extending up an extremity resulting from a localized infected area, and in a later stage, the rigid and cord-like lymphatic channels with enlarged lymph nodes along the course of the system, respond usually to appropriate doses of irradiation.

Parotitis, either acute or chronic, usually responds well to irradiation. Every surgeon is aware of the acute form arising as a complication of certain operations, especially on the large bowel, and of the high mortality associated with it. Rankin and Palmer found that a moderate dose of radium applied soon after the onset, caused the inflammation to subside in most cases within from twenty-four to forty-eight hours. Suppuration usually did not occur and the mortality was correspondingly reduced. Roentgen irradiation is just as effective in doses of 150-200 r, which may be repeated once or twice at two-day intervals, using 200 K. V. P., with 0.5 mm. Cu. plus 1.0 mm. Al. filter. Radium has the advantage in that the treatment can be given without disturbing the patient, unless mobile roentgen therapy equipment is available. It should be stressed that these cases should be treated as early as possible after the appearance of the parotitis, for when irradiation is given early, the inflammatory process is more apt to be aborted or result in early localization. The later the application of the irradiation, the more often it is impossible to avoid serious consequences and the need for surgical intervention.

Another serious condition that has given the medical profession great concern is gas bacillus infection, or gas gangrene. When treated by the ordinary methods, it has a high rate of mortality.

In 1936 Kelly reported forty cases which had been treated with X-ray and since this time he has accumulated data on additional cases which have been irradiated by him and others. According to him, the only patients who died were those subjected to surgical amputation of extremities, and his conclusion is that X-ray treatment is indicated in all cases of gas gangrene and that the treatments should be started as soon as possible and regardless of how hopeless the case may seem. The treatments should be given twice daily in doses of about 100 r for three days and of sufficient voltage to insure penetration of the involved tissue—about 90-100 K. V. over the extremities and from 130-160 K. V. on the trunk, with appropriate filtration. He suggests that the beneficial effect of irradiation in these cases is probably due to the formation of hydrogen peroxide (H_2O_2) in the irradiated tissues, which is based on experimental work done at Stanford University a few years ago. He stresses the importance of treating well beyond the lesion, and using multiple fields when necessary, and allowing a certain amount of overlapping at the borders of the fields. He concludes that amputation is definitely detrimental to the welfare of the patient having gas gangrene and should be discouraged, except in those cases in which the tissues are hopelessly damaged by injury or trauma. It appears, therefore, that it would be safe to rely entirely upon the serum, local antiseptics, local minor surgery and X-ray in treating these cases, starting irradiation as soon as possible after the diagnosis is made.

Indolent surgical and chronic tuberculous sinuses usually give a satisfactory response to the administration of irradiation in proper dosage.

Irradiation is also of real value in the more advanced stages of suppurative processes, such as the palmar abscess, which has drained pus for weeks, or the deep seated pelvic infection, or the diffuse suppurative pneumonitis that does not form a true abscess, and makes it difficult for the surgeon to obtain adequate drainage. Under such conditions, irradiation, in addition to combating the infection, changes the character of the dammed-up exudate, making it more liquid and therefore more responsive to methods of drainage.

Actinomycosis and blastomycosis frequently respond favorably to irradiation, which should be rather intensive in character and is usually in combination with surgery. Irradiation is carried out with high voltage X-rays applied directly to the involved areas in daily doses of 150 r until 900-1,500 r are

given. A second series may be given if necessary after six weeks. Irradiation should be supplemented with iodine therapy. The general health of the patient is important and must be cared for with extra nourishment, tonics and transfusions when necessary.

Dermatophytosis, or the so-called "athlete's foot", as a rule responds well to irradiation. In many individuals a stage is reached when the infection becomes resistant to the usual methods of treatment and it is in these cases that roentgen treatment is most valuable. Doses of 150 r (100-120 K. V., 1.0 mm. Al. filter) are given weekly for four to six treatments, supplemented by appropriate local treatment.

Paronychia may be due to a bacterial or a parasitic infection. In both types, superficial X-ray therapy tends to relieve the condition. The bacterial type may resolve following one treatment, although in chronic infections, several treatments may be necessary. The parasitic type usually requires more persistent treatment. The usual dose is about 150 r of filtered rays at weekly intervals, and five or six treatments may be given if necessary.

Pruritus vulva and ani may be due to external causes, such as infection or parasites, to diabetes, or irritating discharges, or may be definitely neurological. Treatment begins with hygiene; elimination of the causative agent, if possible, and irradiation. Treatment is given with low, or moderate voltage filtered X-rays (100-120 K. V., 1-4 mm. Al. filter) over the vulva, perineum, or anus, in doses of 150 r per treatment, at intervals of five to ten days, for four to six treatments. Occasionally an ointment of nupercain, zinc or calamin aids in the control of the condition.

In acute and chronic otitis media, roentgen therapy offers a non-operative treatment that will result in the cure of a high percentage of cases.

Beattie in 1921 reported the cure of fourteen cases of subacute and chronic otitis media in adults.

Lucinian, in his office practice, treated fifty consecutive cases of otitis media with irradiation therapy. In practically all of the patients the treatment was followed by prompt relief of pain, a gradual drop in fever, initial increase of discharge followed by a gradual decrease, improved hearing, and amelioration of the systemic manifestations of the disease. In the acute cases treated, the necessity for surgery was markedly reduced.

In the chronic cases, the symptoms of persistent aural discharge, pain, tinnitus and deafness were either diminished or eradicated, and the healing of perforated tympanic membranes seemed to be accelerated.

Lucinian, and Dowdy, Heatly and Pierce and others conclude that roentgen therapy, when properly applied, shortens the average course of the disease, lessens complications, and aids in the treatment of complications.

The usual essential technical factors employed are 100-120 K. V., 2.0 mm. Al. filter and doses of 50-100 r, given at three- to seven-day intervals, depending upon the type of case treated and whether acute or chronic.

Roentgen therapy of sinusitis, although not new, has been receiving increasing interest and attention in recent years. The work of Osmond, May, Butler and Woolley, Rathbone, Hodges and others has proven, without any reasonable question, the rationale of this form of therapy in the treatment of chronic paranasal sinusitis in properly selected cases. Many members of the medical profession are not aware of the benefits derived from this form of therapy, because most of the literature on the subject has appeared in radiological journals. Roentgen therapy for sinus disease, in competent hands, is a safe procedure, which may be used for the treatment of children as well as adults. Those cases suitable for roentgen therapy, however, should be carefully selected after consultation between the rhinologist and radiologist. It is not recommended as a panacea in sinus disease. Acute sinus infections usually recover following the ordinary methods of treatment. Pus under pressure in the sinuses should be evacuated and obstructions that interfere with proper drainage should be removed.

The infection accompanying allergic rhinitis and sinusitis usually responds well to roentgen therapy, but in these cases an effort should be made to find the sensitizing agent.

In children, the ideal type of case that responds best to roentgen therapy is one that presents diffuse lymphoid hyperplasia in the nose and pharynx, nasal discharge, history of frequent colds, a chronic cough, and where the roentgenogram demonstrates hyperplasia of the mucosa of the antra, or ethmoids. These cases nearly always respond favorably and the result is usually lasting. In adults, the best results are obtained in those chronic infections with thickened hyperplastic and granulating membranes with only a small air containing sinus cavity.

In polypoid conditions, the results are usually

favorable, provided the polyps are not too large, or too long standing.

In cases with densely fibrotic membranes and scar tissue, very little, if any, change can be detected following irradiation, although in these there is frequently clinical improvement.

It is not unusual to see asthmatic children and adults relieved of their asthma by roentgen treatment to their infected sinuses, supplemented, as a rule, with small doses of irradiation over the chest and mediastinum, anteriorly and posteriorly.

There is no damage to normal structures when the treatment is properly applied, and failure of roentgen therapy in no way interferes with subsequent surgery, should this become necessary.

The technique usually employed by the author is six or seven treatments of 100 r each. Three overlapping areas, 10x10 cm., or 8x10 cm. are treated; one anterior, and a right and left lateral. The eyes and eyebrows and the pituitary gland are protected. The treatments are usually given two to three times per week, treating only one area per day. In children, moderate voltage X-rays (140 K. V.) are used, filtered through 0.25 mm. Cu. plus 1.0 mm. Al. In adults, we usually employ high voltage (200 K. V.) and 0.5 mm. Cu. plus 1.0 mm. Al. filter. Complete and whole hearted cooperation between the rhinologist and radiologist is necessary, if the best results are to be obtained.

In conclusion, the radiologist has a method of therapy which has been proven both experimentally and clinically to be of great value in a number of infections, but it has not received the attention and support it deserves. This is perhaps due mainly to the fact that the clinician and surgeons in their respective communities have not been familiarized with the work in this field, which is largely the radiologist's fault.

To offer the patient the greatest benefit that irradiation will give, there must be thorough and complete cooperation between the clinician and radiologist. Careful clinical observation and judgment is a very important factor—usually the determining one between success and failure of roentgen therapy.

It has a wide field of usefulness as an adjunct to surgery and other procedures. The best results are obtained, as a rule, when the lesions are treated early, because in this stage many of the suppurative types are aborted. Very definite benefit comes from the use in any stage, provided the proper technique and dosage is employed. The results are prompt, pain-relieving and effective in shortening the course of the disease. With this thought in mind, it should not be prescribed merely as a last resort after all other remedies have been tried and found wanting.

This procedure does not interfere with other indicated methods or aids, except that the use of irritating poultices, strong heat, or excessive cold and other irritants is usually contraindicated.

Finally, one point should be strongly emphasized. When dealing with inflammatory conditions, the radiologist must, as far as dosage is concerned, think in terms quite different from those that apply to malignant tumors. When treating neoplasms, the aim is to deliver the largest dose compatible with the integrity of the surrounding tissues. When treating inflammatory lesions, on the contrary, only small or moderate doses are employed. Even when treatment must be repeated many times, the dose of rays should never be sufficient to tax the tolerance of the tissues; otherwise the condition may be worse after treatment than before.

With a better appreciation of its merits on the part of the medical profession, and its more universal administration by radiologists in general, roentgen therapy will rightfully take its place as one of the first-line measures of defense in the proper treatment of certain infections and inflammations.

REFERENCES

1. Archer, V. W., and Barker, W. A.: *Amer. Jour. Roentgenology,* 1933, 30:508.
2. Beattie, R.: *Jour. Mich. Med. Soc.,* 1921, 20:449.
3. Butler, F. E., and Woolley, I. M.: *Radiology,* 1934, 23:528
4. Desjardins, A. U.: *Radiology,* 1928, 11:321.
5. Idem: *Radiology,* 1937, 29:437.
6. Idem: *Radiology,* 1939, 32:699.
7. Idem: *Jour. A. M. A.,* 1931, 96:401.
8. Idem: Read before Amer. Roentgen Ray Soc., Chicago, Ill., September 20, 1939.
9. Dowdy, A. H., Heatly, C. A., and Pierce W. W.: Read before the Radiolog. Soc. of N. A., Pittsburgh, Pa., November 30, 1938.
10. Dunham, K.: *Amer. Jour. Roentgenology,* 1916, 3:259.
11. Firor, W. B.: *Amer. Jour. Roentgenology,* 1916, 3:259.
12. Hodges, F. M.: *Amer. Jour. Roentgenology,* 1924, 11:442.
13. Idem: *Amer. Jour. Roentgenology,* 1936, 35:145.
14. Idem: *Jour. A. M. A.,* 1925, 85:1292.
15. Idem: *Radiology,* 1939, 32:669.
16. Hodges, F. M., and Berger, R. A.: *Jour. A. M. A.,* 1936, 107:1551.
17. Kaplan, I.: Radiation Therapy, Oxford University Press, New York, 1937.

18. Kelly, J. F.: *Radiology*, 1933, 20:296.
19. Idem: *Radiology*, 1936, 26:41.
20. Kelly, J. F., and Dowell, D. A.: *Radiology*, 1939, 32:675.
21. Idem: *Jour. A. M. A.*, 1936, 107:1114.
22. Lucinian, J. H.: *Amer. Jour. Roentgenology*, 1936, 36:946.
23. Manges, W. F.: *South. Med. Jour.*, 1937, 24:109.
24. Merritt, E. A., and McPeak, E. M.: *Amer. Jour. Roentgenology*, 1930, 23:45.
25. Osgood, H. A.: *Radiology*, 1939, 32:311.
26. Osmond, J. D.: *Amer. Jour. Roentgenology*, 1923, 10:374.
27. Pfahler, G. E., and Kapo, P. J.: *Amer. Jour. Roentgenology*, 1934, 32:293.
28. Rathbone, R. R.: *Amer. Jour. Roentgenology*, 1937, 38:102.
29. Warthin, A. S.: Internat. Clin., 1906, 4:243.
30. Whitmore, W. H.: *U. S. Nav. Med. Bul.*, 1935, 33:243.

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EDITOR'S NOTE: This paper was discussed by Dr. Fred M. Hodges, of Richmond, Dr. B. H. Nichols, of Cleveland, Ohio, Dr. Donald M. Faulkner, of Richmond, and Dr. M. H. Todd, of Norfolk, but due to a misunderstanding, the reporter did not secure the discussion.

RECENT PERILS TO THE PRACTICE OF MEDICINE AS VIEWED BY A RURAL PRACTITIONER.

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If every physician in the United States were asked this question, "Why did you choose the practice of medicine for your profession?", I am quite certain that the majority would give reasons similar to mine, namely, I thought I would like some form of scientific work and especially the practice of medicine, and, to quote my father's favorite expression, "I would rather have a peanut stand of my own than to work for the other fellow." In other words, take private practice away from me, although I like my work in treating the sick, I believe I would seek other employment where I could run my own business even if I received less money and worked much harder. In my short medical career my most cherished asset is the many friends I have made and those who regard me as one of the most important units in their family life.

Any form of health insurance, however cleverly disguised, is in the true and last analysis nothing except socialized medicine. The various schemes claim to care for people below the $3,000 wage level, and the remainder will be left for those who choose to do private practice. In my town of about 4,000 people, you can count on the fingers of your two hands the families which will be left for private practice, and, to be more accurate, about one-fourth of 1 per cent. All physicians who must earn a living practicing medicine will be compelled to accept the conditions of health insurance or else discontinue the practice of medicine and seek other employment.

The Wagner Bill, a so-called National Health Bill, now pending in Congress, clearly paves the way for state medicine. Once it is inaugurated, the supporters will come forward to argue that the fees of the members ought to be paid by the taxpayers, and the first time the proposal is put to vote, it will most likely be carried. Instead of achieving the desired results, the practice of medicine will be infested with an almost fatal disease—that disease being politics. Medical science, and in this field the United States leads the world, would be at the mercy of elected officials and the profession would be split into two self-seeking factions, the ins and the politically outs. Then a premium would be placed on political subservience and a handicap upon professional ability. Disease and ill health can neither be cured nor conquered at the ballot box. All doctors on the roll would become job holders and their professional work would be to a great extent controlled and determined by these politicians. To me a person's health is an individual matter rather than a social experiment. It is obvious that in many cases a patient would not want his condition to become a matter of departmental record and curiosity nor would we doctors want our private patients to know that we had treated some of these people.

It is an accepted fact that there is more sickness among the low income group about whose treatment the Government seems so concerned. The illnesses among the low income group are not due to the lack of treatment as all physicians know by the nature, duration, and frequency of the illnesses, but rather to the lack of preventive measures, namely, proper food, clothing, and sanitation around the home. The

main and outstanding reason these essentials are lacking in the home is the lack of income to provide them. It would seem more logical and certainly far better for the health of the individuals in the low income group if the Government would intervene and aid in supplying these essentials to ward off ill health rather than wait until a disease is contracted and then control its treatment. Not only would these people be better off financially, but they would enjoy better health at all times.

It appears to me that specialists or leading clinic physicians are the ones in the medical world who are in favor of health insurance or state medicine in any form. These men do not really know their patients because in their line of work most of it is referred. The patients are handled in a mechanical way, and the doctor never really becomes acquainted with his patient. Those physicians who have never done general practice do not realize what an honest-to-goodness family doctor means to a poor family. Fortunately, I had the privilege of practicing with an experienced family physician who was regarded as one of the most important units of their family life by his patients. Some of his patients who held him in the highest esteem, at the same time realized and knew the need of specialist attention in certain types of conditions and respected the specialist's knowledge, but they did not hold him in the same esteem. There was entirely a different feeling.

In my few years of practice people have come to me for advice relative to family differences, financial difficulties, and many other things not concerning disease. They frankly admit that the questions are not in my line, but they express themselves as feeling freer to talk to the family doctor than to anyone else because he knows best their problems.

If we destroy the private relation of the physician with the patient by health insurance, we might as well submit to our money spending Government's efforts to form state medicine. Health is not achieved nor maintained by merely spending money.

In any form of health insurance as well as state medicine, there will be an approved list of physicians whom the sick man must consult for his particular pain. The physicians who work for less salary, whether it be fixed or based upon the amount of work done, will not maintain a strictly professional status. He may or may not give competent and conscientious service to the patients, for they are in the last analysis the associations', companies', or states' patients, not his. They exist as his patients only by the grace of the association and on the conditions that it sets up. The physician is no longer a free agent because he works for an association which has the greater part of his livelihood in its hands. It is determined to keep within its income, and he is tempted as a makeshift to abate his professional orders to the damage of the patients.

The fees which are charged by the specialists and surgeons are out of proportion with those charged by the general practitioner, and, consequently, these high fees account for the poor collections among these groups. It has been my policy to charge small fees and keep within the means of the patients' incomes, and, as a result, I lose about 15 to 20 per cent of what I do. This percentage will be lost by almost any firm doing a credit business; the losses will include credit to deadbeats, impostors, and to charity. On a plan of health insurance specialists frankly state that if they were guaranteed pay they could cut their bills in half and be better off financially. If we general practitioners did this to our bills with our small fees, we could not possibly make a decent living wage.

The individuals who would carry health insurance through some group form usually pay me the small fees I charge. The percentage I lose is among the unemployed, charity, and deadbeats from whom I am confident, before I render the service, I will receive no pay. These people would not and could not carry health insurance if it were available for them. It is this group that the Government should help us physicians take care of.

Unfortunately, all doctors do not live up to the Hippocratic oath which we are taught in medical school. Industrial companies or companies who carry insurance try to handle their accident cases as cheaply as possible and in most instances give the work to the cheapest man. Instead of maintaining a living wage price, some physicians will underbid and thereby be on the list of physicians for the concern. Then the patient must take the doctor or doctors provided by the company or else pay his own bill to the physician of his choice.

Under any form of prepaid medical care, whether it be state medicine or health insurance, it will require a tremendous amount of unnecessary work in order to satisfy the demands of the public. The doctor will be forced to see patients unnecessarily in many instances or else lose the good will of the pa-

tient. If physicians are paid on a fee basis from insurance funds, competition will force them to render some unnecessary service in order to hold practice; consequently, a huge deficit will be the result for the insurance fund. Some doctors who are advocating health insurance have had the audacity to admit that under a health insurance plan they would attempt to render enough service to patients to satisfy them and not what they deemed necessary for an illness. The only way to check on doctors in such instances would be to require a written diagnosis on the bill and have some insurance doctor adjuster follow the cases as they were being treated. There are many patients who do not care to have the diagnosis of their condition exposed and known by anyone except the attending physician. I am quite certain that every doctor treats some patients and some diseases that he would not care to have society know that he had attended.

Commercial concerns not possessing medical knowledge have no check upon these physicians who can make extra visits which are unnecessary in order to get a living case fee. The cheapest price per visit does not always add up to the cheapest total when unnecessary services are included on the bill. Does this knowledge of fee cutting to the general public strengthen or decrease the respect and admiration which other people have for us physicians? It is putting our services and knowledge on a cheap commercial basis. The same unethical physicians who cut fees and make unnecessary visits on compensation cases will eventually be caring for the illnesses of the individuals carrying health insurance.

Recently, a man came to see me about visiting his child which I had delivered about one year previously, and for which I had not received one dime. I had been accurately informed that his wife started him on the way to my office with some insurance money, but the bootlegger caught the money. Knowing that he was unemployed at present, I asked him how he expected to pay his bills. He said, "I do not want a job. I am drawing unemployment compensation. I can make more by not working since I live over in the country and do not have so much expense. I will pay you Saturday." This is an example of the class of people which is called under-privileged and receiving inadequate medical care by our present National Administration.

Any health insurance would most likely eliminate venereal diseases and certain other chronic conditions from the contracts. Venereal diseases are more common among the group which the Government terms as under-privileged. If there is any lack of medical care in my community, it is largely due to these venereal disease—first, because many of these patients will not accept adequate medical care. Many do not go to a doctor at all and a large percentage of those who do consult us discontinue treatment when relieved of symptoms in spite of the advice of the attending physician. These latter ones partly discontinue treatment on account of finances since their illnesses usually require a prolonged course of treatment in order to obtain good results.

The cost of medical care to the country as a whole under any form of health insurance will be forced to rise tremendously from its present cost. We know that direct payment for any commodity from producer to consumer is the most economical by far. Under any nation-wide system of medical care there would be a tremendous operating over-head for highly paid executives. The fees of the physician should be higher under any insurance plan instead of lower as most laymen and advocates of health insurance seem to think because much more of a professional man's time would be consumed in filling out insurance blanks and questionnaires and making out itemized bills. An extra stenographer would be needed to do this added amount of work. Quite a bit of my time now is consumed in filling out blanks for "carriers" of group sick benefit insurance. Patients do not seem to expect to pay for this, but often it takes more time to fill out these blanks than it does to give some treatments.

I have known of several patients carrying sick insurance who had rather be off sick and draw insurance than to work at their regular job. I have discovered that they were going to one doctor as long as they could fool him to sign their insurance papers, and, when they could no longer fool him, they would go to another. I refuse to treat them in these cases when I think they are pretending an illness.

Now, if people will pay a doctor a fee for attention in order to fool him and make him believe they are sick to sign an insurance blank, when it takes one-half or more of the weekly compensation, how many more will pretend to be sick when the bill is already paid by health insurance, especially if they have a sickness benefit clause? A large percentage of our practice consists of people who have no organic disease and need psychic therapy. What keeps them away from our office the times that they do stay away

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is the bill. These individuals and fakers who want to draw sick benefit insurance, if we have free medical care or health insurance, will make it necessary to have many, many more physicians in our country to care for those seeking medical care. The funds appropriated for public health in the United States have been increasing at such a rapid rate in some states that commissioners of health have had to enlist in their forces persons they know are ill-prepared to carry the load. There has been more money available to hire people to go into public health than there are trained persons to carry out the work. There would be this same shortage of those to treat the sick if the number of doctors had to be so vastly increased. The medical schools could not graduate men fast enough. The lack would be similar to the one experienced during the World War. This increase in the number of physicians will either necessitate a higher rate of health insurance which has taken place in organized groups in Washington, D. C., or the cutting of physicians' wages. The latter is most likely to occur universally—it has happened in all countries having group medical care. We read where the physician is told how much medicine he can prescribe, and if he gives over a certain amount, he must pay for it himself.

I know of no better argument against experimenting with health insurance than the fact that practically all of the leading life insurance companies have discontinued writing sick benefits clauses in their policies because the claims were so tremendous that it would necessitate a vast increase in premium rates. The few companies which continue to write this insurance have so many clauses and exceptions in the policies that they are practically worthless. Almost every patient I have treated who carried insurance and had any sickness of very long duration was sadly disappointed when the company settled with him. The policies in many cases did not allow benefits the patient had been led to believe they contained, and often the policies were cancelled when the holder thought he possessed a non-cancellable type.

I was recently told by a leading hospital superintendent that their hospital was running nearer full capacity than it had any time previously. The explanation was that the turn-over of patients or the duration of hospital stay for any particular illness is much slower now than it was before the advent of hospital insurance. The patient when informed by the physician that it would be possible for him to leave the hospital usually states that there is no one at home to wait on him, thus creating the necessity of hospitalization until he is able to wait on himself. Due to the above some of the insurance companies writing hospital insurance have recently added several exceptions to their policies and started investigating each claim very closely.

In some localities in the United States local medical societies have run surveys as to the adequacy of medical care and found quite different results to what Government surveys have disclosed. No one knows better than the physicians in our country as to the adequacy and need of medical care because we are subject to call twenty-four hours each day into the many homes far and wide. I admit medical care in this country is far from perfect, but I know of no work of mankind that is perfect. I challenge the critics of the medical profession to show me where medical care is any less efficient than any other work of mankind today. I firmly believe that the doctors are doing as good a job in our field for society as our Government is rendering government services. From the beginning of time most people have always conceded that private enterprise can do almost any job more efficiently and more economically than Government.

I have conceded that medical care is not perfect; it seems to me that my fees are much less of a burden to my patients than special nurses, hospital bills, specialist fees, and drugs. In my community I do not know of any patients who have to do without a physician, but I treat cases daily that need trained nurses to care for them and cannot afford them. In many homes the living conditions are so bad that one could not ask a nurse to go there and stay even if the patient had the money. I do not believe that nurses fees are too high. It would be possible—and it is a service very much needed—for hospital insurance contracts to allow graduate nursing service in the home when it is not advisable to hospitalize the patient. Hospital bills are being taken care of by hospital insurance by some individuals, but the ones who need it most do not carry it. Specialist fees are evidently out of proportion to fees of general practitioners or they would not lose such a greater percentage of their charges. It would seem more feasible to cover the fee of an appendectomy, cholecystectomy, or mastoidectomy through health insurance than it would general medical practice because very few people will submit to these operations unless their

case is very grave. The cost of drugs might be lowered by stopping so many royalties, the marketing of drugs under trade names, and the returning to the use of official preparations by the medical profession.

The most common cause of inadequate medical care in my community is the refusal of the people to accept it. Part of this is due to religious beliefs and indifference, and a larger part to tradition. For example, I adopted a policy early in my practice of giving free prenatal care to any of my patients who came to my office for it. At first, I talked to them and told them that my price would be the same whether or not they accepted prenatal care. I also told several of my patients who were going to have midwives at delivery that I would also give them free prenatal care. When this plan failed, I then made it known to those I came in contact with that I would no longer answer obstetrical calls to those who had not come for some prenatal care. The latter procedure has caused about 95 per cent of my obstetrical cases to accept at least partial prenatal care. Socialized medicine whether state or a system of health insurance cannot educate society to the changing order of medical care any quicker than the private physician. In the last few years doctors all over the United States have accomplished a great deal toward educating the people in these matters, but the process is gradual.

In this day and age the Government is branching out in many activities. The indigent are being fed and clothed by paying wages through the W.P.A., and they can make their purchases from private merchants. It would seem fair to our profession for the Government to pay private physicians and non-Government hospitals for medical and hospital care for the indigent. I believe all of this care should be solved in each county by the county itself with the aid of Federal funds according to the county's ability to care for its indigent. The low income group could be taken care of by hospital group insurance and by group insurance to care for moderate fees for certain stipulated operations or expensive treatments. The general medical care should be handled by liberal credit and moderate fees according to the circumstances and as deemed wise by the family physician.

I believe that the existing bill before our Congress presents a challenge to every conscientious physician for action to help save the liberty of our profession and the high standards of medical practice which have been developed in our country. If we save the liberties of our profession, we would not only help ourselves but also the liberties of all other groups of self-respecting American citizens. We as physicians should realize what politically controlled medical practice will bring about; whereas, the public does not and cannot know.

PATHOLOGICAL IMPLICATIONS IN BACON'S REBELLION.

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Historical reality commonly bears but little actual resemblance to the roseate pictures drawn by the purveyors of historical romances, but the happenings of the eventful months between May and October, 1676, in the Colony of Virginia may well be an exception. As factual and sober an historian as Hendrick speaks thus of the chief actor of that period, ". . . . On the personal side, Bacon has always been a compelling figure. He flames, like a backwoods D'Artagnan, amid the desolation of the time—forceful, gallant, risking and losing everything in what he regarded as a sacred cause. School book histories have printed on the memory Bacon's defiance of Berkeley as, hand on sword hilt, he confronted him before the Jamestown courthouse and forced the cowering governor to his will; and his secret midnight burial in the York or some other unknown spot has enshrined his martyrdom with a mystery stimulating to romance. Seldom has a revolutionary leader so united in one person oratory that stirred the most sluggish and military prowess that brought unvarying success. Bacon was both the Patrick Henry and George Washington of the rebellion of 1676 . . . was not only the Patrick Henry and George Washington of 1676, he was the Thomas Jefferson as well. . . . This detested swashbuckler had become a modern hero, the first performer in a drama that had its blossoming in the American Republic. . . ."[1]

The thing above all else that brought Bacon into violent collision with the governor, Sir William

Berkeley, was his championship of the then political heresy that authority in government rightly rests with the people. Berkeley, at the head of a cabal of nineteen men, ran the colony to suit himself and them, and kept a complaisant Assembly sitting from 1662 to 1676.

Bacon was born at Friston Hall, Suffolk, England, in 1647, and well born. He was a first cousin three generations removed of Francis Bacon, Lord Verulam, a graduate of St. Catherine's College, Cambridge, had studied law at Gray's Inn of the Inns of Court, travelled on the continent, married, and finally emigrated to Virginia in 1674.

Bacon's antagonist was the colonial governor, Sir William Berkeley. He was born in or near London about 1608. He was a graduate of Merton College, Oxford, and was a dilettante in literature, producing a tragi-comedy called "The Lost Lady" in 1638. Samuel Pepys in his diary has left a priceless record of two visits to a London theatre to see this piece. The first time he saw it, January 19, 1661, it did not please him because he was troubled by seeing four of his office clerks near him in the theatre. He saw it again, however, on January 28. "I saw again 'The Lost Lady' which does now please me better than before; and here I sitting behind in a dark place, a lady spit backwards upon me by mistake, not seeing me; but, after seeing her to be a very pretty lady, I was not troubled at all. . . ."[2] —a revealing observation both as to Pepys and the London manners of 1661.

Sir William's family was politically prominent. His father, Sir Maurice Berkeley, was one of the original organizers of the London Company in 1606. An older brother, John, Lord Berkeley of Stratton, was a particular favorite of Charles II. The penetrating light of Pepys' observation was turned upon his personality: ". . . . My Lord Berkeley was there but is the most hot fiery man in discourse without any cause that ever I saw, even to breach of civility to my Lord Angesley in his discourse opposing to my Lord's. . . ."[3]

Sir William Berkeley was appointed governor of Virginia by Charles I in 1641 and came out in February, 1642. He was then thirty-four years of age. Extremely popular at first, he captivated the Virginians by his manners, his hospitality, and his energy. He vetoed a poll tax of four pounds of tobacco which annually went to the governor. In token of appreciation, the Assembly made him the gift of an orchard and two houses belonging to the colony. A later Assembly confirmed this gift "to the said Sir William Berkeley and to his heirs forever".[4]

The day before Good Friday, April 18, 1644, the Indians, under the direction of 100-year-old Opecancanough, attacked the settlements and murdered many whites. Berkeley personally led his troops with vigor, put down the uprising, and brought old Opecancanough a prisoner to Jamestown. Thus did the governor cement the bonds of affection between himself and the people.

But, at this time, across the sea loomed the figure of Oliver Cromwell; Charles I lost his head at Whitehall. In 1652, a Parliamentary fleet appeared in Virginia waters and Berkeley, the royal Governor, was compelled to step aside in surrender to Bennett. Berkeley retired to his home at Green Spring, six miles from Jamestown. Here, for eight years, he fretted his impatient soul until the Restoration.

In 1660, anticipating by about three months the restoration of the monarchy in England, the people of Virginia returned Berkeley, apparently by action of the Assembly, to the gubernatorial office. But things had changed. Instead of vetoing taxes, the Governor and the Assembly now began to levy them with reckless abandon. The Navigation Acts, the first of which was enacted by the Commonwealth Parliament and re-enacted by the first Restoration Parliament, excluded the Virginians from the Dutch tobacco market and compelled them to ship in British vessels at disastrous rates, thus impoverishing them and desolating the country. An Act passed in 1670 permitted only landholders and householders to vote. Soon, too, they were faced by the menace of the uplifted tomahawk. The colony's cup of woe was running over.

The governor whom they had idolized was a changed man, though, in justice, it must be said he opposed vigorously the Navigation Acts and did all in his power to have them repealed or modified. Covetousness now showed as one of the outstanding manifestations of his character. He is described in 1665, at which time he was fifty-seven, as an old man. This would imply prematurely old, presumably arteriosclerotic. He was stern and selfish, haughty and unsympathetic, intolerant of advice or criticism, despising the commonalty and distrusting them. He declared that "learning had brought disobedience into the world" and he was careful to see that the Virginians had little opportunity to acquire

it.[5] From the time of his return from a trip to England in 1662, he prorogued each sitting of the Assembly, composed of his creatures, until 1676, when he was compelled by pressure brought by Bacon to issue writs for a new election.

In 1670, at the age of sixty-two, he married for the first time. His bride was a widow of thirty-six years, the relict of the Honorable Samuel Stephens, born Frances Culpeper. The diagnostic acumen of the laity is manifested by a sentence from the author of "A Complaint from Heaven, with a Huy and Crye and a Petition out of Virginia and Maryland". The sentence ran, "Old Governor Barkly altered by marrying a young Wyff from his wonted public good to a covetous Fole-age, relished Indians presents with some that hath a like feelinge, so wel, that many Christians' Blood is Pokketed up with other mischievs, in so mutch that his lady tould that it would be the overthrow of ye Country".[6]

One of the governor's most cherished intimates writes at this time that, next to the heavy taxes, he thought the colonists' discontent was built largely upon ". . . injuries done in the courts through the Governor's passion age or weakness. . . ."[7]

Are not all these, the change in personality from gracious affability to crabbed manners, the covetousness, the premature appearance of age, the late marriage, the litigations, manifestations of hardening of the arteries of the brain working on the hair trigger temperament and the rigid psyche? Fiske,[8] quoting from Neill's Virginia Carolorum, page 341, gives a vivid clinical picture of the governor at this time (1672). "He became subject to violent fits of passion. The famous Quaker preacher, William Edmondson, who visited Virginia in 1672, called on the governor and sought to intercede for the Society of Friends, the members of which were shamefully treated in that colony. 'He was very peevish and brittle', says Edmondson, ' and I could fasten nothing on him with all the soft arguments I could use. . . . The next day was the mens' meeting at William Wright's house, where I met Major General Bennett. He asked me how I was treated by the governor. I told him he was brittle and peevish. He asked me if the governor called me dog, rogue, etc. I said, 'No'. Then he said, 'You took him in his best humor, those being his usual terms when he is angry, for he is an enemy to every appearance of good'."

Early in 1675, some Indians who had been defeated in an intertribal war in New York and were retreating South, fell upon outlying plantations on the Rappahannock and Potomac and killed thirty-six whites. Governor Berkeley did nothing in this contingency except to go through the idle mockery of establishing forts. After establishing the forts, he forbade any firing upon the Indians except by his precise permission. It was freely charged by the people that Berkeley protected the Indians because he was engaged in trade with them. A cryptic saying of the period was "Bullets cannot pierce beaver skins". It was further generally thought with apparent reason that the very guns and ammunition with which the Indians shot the whites and which, by law, were expressly forbidden in trade, were furnished to the savages by Berkeley's own agents. So heavily freighted were the odds against the planters that the plantations contiguous to these attacks quickly dropped in number from seventy-one to eleven.

The depredations of these marauders continued throughout the fall and winter and, in one day of January, 1676, thirty-six whites were killed within a circle whose radius was ten miles. The governor insisted that nothing could be done until the regular term of the Assembly in March. The Assembly met and voted the necessary money. A force of six hundred men was organized and about to march when the governor, in the most capricious manner for no fathomable reason, ordered the force to disband and cancelled the orders for a campaign against the Indians.

The situation was now intolerable. William Byrd, I, James Crews and Henry Isham, neighbors of Nathaniel Bacon, Jr., of Curles Neck and Bacon's Quarter at the Falls of the James, urged Bacon to cross the river to Jordan's Jorney in Charles City County, where drums were even then beating up volunteers, and take command of the people's army. Bacon's overseer at Bacon's Quarter had just been murdered by the Indians; he, therefore, accepted.

His subsequent course stamps him as a born military leader, daring, energetic, resourceful, careful. He sent a courier to Berkeley requesting his commission, but he did not await the governor's reply. He struck boldly off on a campaign which, in a few weeks, was to put Virginia forever beyond danger from Indians. He made amazing marches and fought several desperate but invariably successful battles. After a first impact and a siege, he defeated and destroyed an Indian village on an island in the Roanoke River near the present site of Clarksville.

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Another successful stroke was delivered on the Appomattox at about the present site of Petersburg, another on the North Anna, northwest of the Falls of James.

Meanwhile, the infuriated governor had proclaimed Bacon and those with him, rebels. He attempted to raise forces to destroy Bacon, but the people, quick to appreciate their savior from the Indians, turned away from the governor and joined Bacon in large numbers. Quickly he became the idol and darling of the Virginians. As he passed along the trails, women would rush out with food and presents and shout that they, too, would come and fight under his standard.

Berkeley saw that there was little hope of overcoming Bacon by force. He, therefore, resorted to stratagem, craft and treachery. Bacon had forced the issuance of writs for the election of a new Assembly and he and Crews were elected to the Burgesses from Henrico. Proceeding by water to Jamestown, Bacon was arrested by Captain Gardner at Berkeley's command. But when Bacon arrived at Jamestown, the crowd was so definitely hostile to Berkeley that he released Bacon and, with psychotic caprice, ordered Captain Gardner to pay a fine of thirty pounds. Gardner had arrested Bacon on Berkeley's direct order but the hypocritical governor ordered him thrown into jail in default of the payment of the fine. He then made crafty and insincere overtures of forgiveness to Bacon but was soon plotting to have him assassinated.

During this meeting of the Assembly (June, 1676) suffrage was again restored to the people and many wise laws known as "Bacon's Laws" were passed. Some of these repealed after Bacon's death were again re-enacted and remained in effect. Bacon escaped from Jamestown just before the close of the Assembly. He had learned that agents of Berkeley's were to be stationed on the roads to assassinate him.

Finally, completely out of patience with Berkeley's arrogance and treachery, Bacon twice drove him to the Eastern Shore and burnt his capital at Jamestown. But, in the midst of these exertions, the Rebel died on October 1, 1676, at Pate's House, Gloucester County, eighteen miles northwest of Tindall's (now Gloucester Point) of malaria.[9]

That it was malaria, there is little doubt. Malaria was, until a few years ago, prevalent along the low-lying shores of both the James and the York. The capital at Jamestown was abandoned in 1699 in favor of Middle Plantation (Williamsburg) because of malaria. The mosquito is infamous in the literature of the period. Fiske[10] writes, "Already the Virginia bed often had a protection for which England could have no use, the moquito net". And a traveller in Maryland at that time wrote,

> "Not yet from plagues exempted quite
> The curst muskitoes did me bite
> Till rising morn and blushing day
> Drove both my fears and ills away."[11]

Governor (now U. S. Senator) Harry F. Byrd, writing in the Encyclopedia Brittanica, says that it was malaria.[12]

So quickly was Bacon, a young and vigorous man (he was twenty-nine), felled that the suspicion is aroused that this was a malignant æstivo-autumnal malaria, possibly "blackwater fever". To the medical man, the great tragedy of the situation is well indicated in a sentence of Yonge, "Shortly before the middle of the century (17th) the learned Sydenham had proposed using Peruvian Bark, but recently (1642) introduced into Spain. In this, however, he was opposed by his confreres".[13] Had the great Puritan Sydenham[14] been as successful in introducing the Peruvian bark (quinine) into England and the English colonies as the Jesuits were in introducing it into Spain, it is easily possible that Bacon's life might have been saved.

Leaving Bacon to the secure glory of martyrdom in a just cause, we again return to his vis-a-vis, the vehement governor. Berkeley, hearing of Bacon's illness and death, hurried back from his Eastern Shore hideout with the psychotic and ghoulish purpose of exhuming Bacon's body and hanging it in chains. But in this he was circumvented by the wit and devotion of Bacon's followers who buried an empty coffin filled with stones at Petsworth Parish Churchyard (now called Poplar Springs) and laid Bacon in a secret spot, probably beneath the waters of the majestic York.

The most charitable accounts indicate that, from this time on, Berkeley showed a degree of savagery and an absence of feeling that stamps him as insane. His career of blood in a few short weeks brought twenty-three of Bacon's followers to a summary end with no more than the mockery of a trial for any. He spared only those whose power or money brought immunity. Col. Augustine Warner he must have spared through fear of his grim power; Col. Wm. Byrd, I, who had been instrumental in persuading Bacon to take command[15] and who had accompanied

him on one expedition,[16] he probably spared for business or family reasons. Byrd had a most lucrative fur trade with the Indians; Berkeley's interest in the Indian trade has already been indicated.

Col. Augustine Warner, the father of George Washington's grandmother, Mildred Warner Washington, with atavistic predilection had espoused the cause of Bacon. He was the Speaker of the Assembly which convened in January, 1677, immediately after the Rebellion. As Speaker, it was his duty to read the governor's message to the Assembly. When he came to that portion in which Berkeley requested the Assembly to bestow some mark on the Accomackans to attest their loyalty to him during the Rebellion, the speaker growled that he didn't know what marks would be appropriate unless they were "burnt marks". "Burnt marks" were then used to brand hogs and criminals.

But many others, brave and gallant spirits, paid the full penalty for their devotion to the Rebel. Richard Lawrence, the Oxford scholar, known to history as "the thoughtful Mr. Lawrence", disappeared into the wilderness never to be heard from again. William Drummond, the brave Scot, who had been Governor of the Albemarle Colony (North Carolina) and after whom Lake Drummond in the Dismal Swamp is named, was captured half starved and half frozen in January in White Oak Swamp. Brought before the gloating governor, he was hanged in half an hour. It is recorded that the governor tore Drummond's wife's ring from his finger and pocketed it. When Major Cheesman's wife begged for her husband's life, saying that she induced him to join Bacon and pleading that she be executed in his stead, the insane governor hurled at her the most cruel taunt a virtuous woman could hear.

This madman with complete lack of insight challenged the King's authority and set aside his orders. He suppressed the King's proclamation which granted amnesty to all except Bacon, and issued his own. As the tidings from Virginia penetrated to Whitehall, even easy-going Charles was shocked. He exclaimed, "That old fool hath hanged more men in that naked country than I have for the murder of my father". The King sent word for Berkeley to return to England but the governor ignored the King's wish until a second and preemptory message commanded him to return.

Not only did Berkeley take the lives of more than a score of Bacon's followers but he also put the broad arrow of confiscation on the property of the widows and orphans he had made. Some of this property was appropriated to his own use and formed the bases of suits against Lady Berkeley for several years after Sir William's death.[17]

The psychotic victim of arteriosclerosis passed from the Virginia scene with one last frenzied jest, through which his bitterness stands starkly revealed. The King's Commissioners, to whom he had denied the hospitality of Green Spring, came from Swann's Point across the James to bid him goodbye on the eve of his departure for England. When they left Green Spring after paying their call, they found the governor's coach at the door. As they were about to enter the coach, a stranger displaced the regular negro driver. The Commissioners discovered that their new driver was the common hangman, whereupon in disgust they turned and footed it to the wharf and the boat that was to return them to Swann's Point.

In May, 1677, Berkeley returned to London, a broken, bitter man, sick in body and mind—the picture of premature physical and mental decay. He died in London about the middle of July without seeing the King or having to give a personal accounting of his bloody stewardship. The King realized his real condition and spared his feelings.

The impact of pathology upon the stream of history has been examined from time to time by medical men, among others by C. MacLaurin of Sydney, Australia, C. W. Burr of Philadelphia, and Jas. K. Hall of Richmond, Virginia. Dr. MacLaurin has shown the significance to English history of the syphilis of Henry VIII;[18] Dr. Burr[19] has pointed out the potentialities of the paranoia of Marat in the French Revolution, and Dr. Hall[20] has demonstrated the value to the American Revolutionary forces of the hyperpituitarism of Peter Francisco.

If Bacon's malaria could have been cured by Peruvian bark, might he not, as he planned, have arrested Berkeley and taken him to England to prefer charges against him to the King? Some may object that such a course would have merely resulted in Bacon's arrest and would have cost him his life. But it is of record that Bacon actually planned this move and, but for a miscarriage of his plan, would probably have accomplished it; and no one has accused Bacon of being unintelligent. There are several points worthy of reflection in this connection. Charles II did not occupy too secure a seat on the English throne and there was a strong Parliamentary party

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and much sentiment for an increase of the rights of the common people. Besides, Bacon was not without friends and influence in England. True, the plan was daring, but Englishmen traditionally admire daring.

On the other hand, Bacon had an alternative plan. If the redcoats came in response to Berkeley's call for help, then he (Bacon), with his loyal followers, could retire to the frontier. An island in the Roanoke River had been tentatively selected where in all probability he could have held out indefinitely against any force of redcoats sent against him. His small army could easily have subsisted on the country and, judging by what happened to Braddock some seventy-eight years later, it would have easily outfought the British. If Bacon could have held out thus, might he not have gained such concessions from the Mother Country that would have obviated at least many of the causes of the Revolution? England learned after the Revolution of 1776 how to deal with her colonies. Could she not have learned this in the Revolution of 1676, had Bacon lived? Certainly an intriguing question is posed here as to the historical weight of Bacon's malaria.

The sickness of Berkeley likewise raises interesting points. If we are correct in our historical diagnosis (and we feel the evidence is abundant) that the governor suffered from the mental effects of hardening of the arteries of the brain and early senile decay, the question comes up: had he been mentally intact, would the Rebellion have occurred? From the record of his first term, we are justified in doubting it. During his early years in Virginia, he loved and was loved by the people. But on his resumption of office after the Restoration, it was noticed on all sides that he was a changed man. His age was fifty-two but he was everywhere spoken of as "the old governor", "old Governor Berkeley", "a covetous old man", etc., the emphasis on old. Whereas he had before been gracious and affable, he was now arrogant, mean in money matters, covetous; he distrusted learning in others; he married a young wife; he was constantly involved in litigation; tampered apparently with the due processes of the courts. There seems little doubt that he and a few of his intimates were engaged in a secret fur trade with the Indians and, for this reason, he failed in his imperative duty to protect the colonists against Indian attacks. He flouted the rights of the common people by coercing a supine Assembly to abrogate many of their political privileges; and, by proroguing the Assembly year after year, he kept the same Burgesses in office from 1662 to 1676, though there had been numerous vacancies through death and other causes. His conduct to his own officers was capricious and his temper uncertain; he was given to outbursts of violence and showed lack of judgment. His scene at the Jamestown courthouse when he cried to Bacon, "A fair mark, shoot!", grandiloquently exposing his pectoral region, is suggestive of a maudlin self-pity. How sincere his forgiveness of Bacon was is attested by the knowledge that a few days afterwards he was assiduously plotting his assassination.

It is true that, in the large, the chief factors in impoverishing the colonists and planting the seeds of trouble to come were the Navigation Acts. But the immediate spark that touched off the Rebellion of 1676 was the question of Indian massacres. Judging entirely from Berkeley's previous attitude, had he not been mentally different, he would have himself led early, vigorously and successfully against the Indians. Had he done so, the chief cause of the Rebellion, certainly during his time, would have been removed. If Berkeley had protected the people from the Indians and given them their customary privileges of electing Burgesses, choosing vestry, and taking part in their government, there is little likelihood that he would have ever seen a rebellion in Virginia. On the other hand, his name would have come down the years clothed in honor and affection, though the issues raised by the Navigation Acts would still have pressed for their final solution which came in 1776.

If the medical man has anything of value to offer the historian, is it not the assay for good or evil of the physical and mental qualities of the actors in the dramas of the past to the end that an informed electorate (if democratic government is to survive) can searchingly examine not only the character and qualifications of the candidates for their choice, but their physical and mental assets and liabilities as well?

BIBLIOGRAPHY

The writer of this essay is indebted chiefly to the books of John Fiske, Mary Newton Stanard, and Samuel Yonge. All of these are secondary sources but the primary sources are so well cited in these works (particularly Fiske) that source material is made accessible. The works consulted are listed and the method of citation in the text indicated.

Virginia Magazine of History and Biography, Vols. 1 and 4.
Burton J. Hendrick: "The Lees of Virginia," Little Brown and Company, 1935; cited as Hendrick.
Encyclopedia Brittanica, 14th Edition, cited as such.
The Diary of Samuel Pepys, F.R.S., Everyman's Library, 2 Vols., E. P. Dutton, 1927, cited as Pepys.
Samuel H. Yonge: "The Site of Old Jamestowne," L. H. Jenkins, Inc., Richmond 1926, cited as Yonge.
John Fiske: "Old Virginia and Her Neighbors," 2 Vols., Houghton Mifflin Company, 1897, cited as Fiske.
Mary Newton Stanard: "The Story of Virginia's First Century," J. B. Lippincott, 1928, cited as Stanard.
C. MacLaurin: "Post-Mortems of Mere Mortals," Doubleday Doran Company, 1930.
C. W. Burr, M. D.: "Jean Paul Marat".
Physician Paranoiac Revolutionist: Pamphlet.
Jas. K. Hall, M. D.: Peter Francisco.
Fielding H. Garrison: History of Medicine, W. B. Saunders, 1914, cited as Garrison.
Dictionary of American Biography, cited as D.A.B.

REFERENCES

1. Hendrick: Pages 37, 38.
2. Pepys: January 28, 1661, Vol. 1, Page 130.
3. Pepys: December 3, 1664, Vol. 1, Page 536.
4. Stanard: Page 206.
5. Wm. Meade: Old Churches and Families of Virginia, Vol. 1, Page 190.
6. Quoted in Stanard, Page 255.
7. Quoted in Stanard, Page 255.
8. Fiske: Vol. 2, Page 58.
9. Encyclopedia Brittanica, 14th Edition, Vol. 2, Page 888.
10. Fiske: Vol. 2, Page 225.
11. Fiske: Vol. 2, Page 219, quoting Henning's Statutes, II, 292.
12. H. F. Byrd in Encyclopedia Brittanica, 14th Edition, Vol. 23, Page 188.
13. Yonge: Page 135.
14. Garrison: Page 203.
15. Stanard: Page 263.
16. D.A.B.—Biography of Wm. Byrd I.
17. Yonge: Page 128.
18. Dr. MacLaurin: Mere Mortals, Page 50, *seq.*
19. Dr. C. W. Burr: Marat, Jean Paul—"Physician Paranoiac Revolutionist," *Annals of Medical History*, Vol. 2 (1919), Pages 248-261.
20. Dr. James K. Hall: "Peter Francisco Hyperpituitary Patriot", *Annals of Medical History*, New Series, Vol. VIII, No. 5, September, 1936.

THE USE OF DIGITALIS AND QUINIDINE IN THE TREATMENT OF HEART DISEASE.*

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Prior to 1785 digitalis was used by the medical profession but chiefly as an emetic and purge. Withering, in the latter part of the eighteenth century, introduced the drug for the treatment of dropsy and his method of dosage and management of the drug has changed very little during a hundred and fifty years. Although his teachings were almost ignored for one hundred years the present generation has again begun to appreciate the value of the drug and to learn how to use it properly. I will just quote briefly from his directions for use of the powdered leaf: "I give to adults from one to three grains of the powder twice a day. In the reduced state in which physicians find dropsical patients, four grains a day are sufficient. . . . About thirty grains of the powder . . . may be taken before nausea commences." He went on further to advise that the drug be given until it acted on the stomach, the bowels, the kidneys or the pulse, and then be stopped.

Several active principles of digitalis have been extracted but for most purposes the dried whole leaf is most satisfactory and this, when it is used in the capsule, tablet or pill form. The standardization of the drug is fairly accurate now and when dispensed by a reliable concern can usually be depended upon.

The chief actions of digitalis are in depressing the sino-auricular and auriculo-ventricular pace-makers of the heart, depressing auriculo-ventricular conduction and increasing the tone and contraction of the heart muscle. In toxic doses, these actions may produce auricular paralysis, all grades of heart block, coupled rhythms due to extra systoles, auricular fibrillation and even ventricular fibrillation. However, when these conditions occur as a result of overdigitalization the fatal dose has almost been reached, and any of these disorders are indication for immediate cessation of the drug. The more important signs of toxicity which usually occur sooner are very valuable in determining the minimum effective dose of digitalis. These are malaise, headache, loss of appetite, nausea and, later, vomiting, diarrhea and visual disturbance in the form of yellow vision. With

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the onset of loss of appetite in a patient receiving digitalis it is wise to drop down to a maintenance dose, or, if this has already been done, give the drug every other day instead of daily.

Broadly speaking, there are two real indications for digitalis therapy, persistent auricular fibrillation or flutter and congestive heart failure. Persistent fibrillation usually occurs in the older group of patients and may be due to a long standing rheumatic heart disease but occurs more commonly probably on a basis of coronary artery disease. Quinidine is the drug of choice in the younger cases of fibrillation or flutter and certainly should be tried first. Digitalis is best given by the slow process of digitalization in most cases. Using the powdered whole leaf, in tablet, pill or capsule form; one and one-half grains or one cat unit is given three times a day for six, seven or eight days according to the weight of the patient, and after that a maintenance dose of one and one-half grains each day. A good general rule to follow is to give one and one-half grains for each ten pounds body weight and add one more grain and one-half tablet for each day taken for digitalization; that is to allow for the usual daily excretion. For faster digitalization the drug may be given in three grain doses, three times a day for three days or four and one-half grains four times a day for one and one-half days. The rare occasions where oral medication is not feasible or where digitalization is considered an emergency can be met by the use of injectable preparations intravenously in initial doses of seven and one-half grains to be followed by two more doses of three grains at the end of four and eight hours. This can then be followed by daily maintenance doses equivalent to one cat unit. The use of liquid preparations by mouth, such as the tincture, are less convenient than the pill or tablet form but when given the dosage should be ten times that given in the dry form because the tincture is a 10 per cent solution, i.e., for maintenance dose fifteen minims daily. During the administration of the drug the patient should be observed carefully and frequently to determine when the therapeutic effect is obtained or to recognize toxic symptoms early.

I shall now outline one case in which digitalis was used to combat auricular fibrillation and heart failure in an elderly hypertensive.

Mrs. H. W., aged sixty-five years, was first seen in 1934 complaining of cough and shortness of breath of five years' duration. She had been having considerable wheezing and had taken digitalis and creosote without relief. Her right foot had been swollen and at that time she was thought to have heart trouble. Physical examination revealed a moderately enlarged heart and a blood pressure of 182/94. The heart rate and rhythm were normal. The chest was somewhat emphysematous and auscultation revealed that the breath sounds were louder than normal and expiration was accentuated over both lungs. A few expiratory squeaks and groans were heard posteriorly over the bases. Although this patient had some hypertension and slight cardiac enlargement, it was not thought that she was in heart failure but suffering from asthma. She was treated on this basis and improvement was rapid. She remained symptom free as long as she took her medicine which controlled all attacks until May 30, 1939, when she came to the office complaining of severe shortness of breath of two weeks' duration which was not relieved by her asthma medicine. She was very uncomfortable and had spent several nights sleeping in a chair. Physical examination at this visit revealed that the patient was very short of breath even in the erect posture and she could not breathe lying down. The heart beat was grossly irregular and the rate at the apex was 152 per minute. There were a few rales at both lung bases but they were not asthmatic in character. There was a moderate edema of both ankles. The diagnosis of auricular fibrillation with congestive heart failure was made. The patient was sent home and put to bed. As she had taken some digitalis, quantity unknown, it was thought best to give the drug cautiously. She was given five grain and one-half tablets that day and three the next without any signs of digitalis intoxication. When seen on the following day she was breathing comfortably in almost a reclining position; the heart was still irregular but the rate was eighty-four to the minute. Only a few scattered rales were heard at the lung bases and her edema had disappeared. The digitalis was brought down to maintenance dosage of one and one-half grains daily and when last seen she was ambulatory and the heart rate, though still irregular, was seventy-two at the cardiac apex. Her chest was clear and except for a chronic cough she was feeling fairly well. This case is interesting for several reasons: First, because of the problem of differentiating cardiac from bronchial asthma; second, because it is a lesson in determining the indication for digitalis, and, third, it shows that in some cases even when the

correct diagnosis is made and the proper drug selected for therapy the treatment may not be successful if the dosage is not handled properly.

Quinidine is obtained from the cinchona bark and is a by-product in the manufacture of quinine, to which it is closely related. This drug came into use in the treatment of heart disease even later than digitalis, although Senac in 1749 recognized that the drug was helpful in cases of palpitation. Wenckebach in 1914 was the first to recognize the drug's specific action on auricular fibrillation.

Quinidine acts chiefly by increasing the refractory period of the auricular muscle and decreasing its rate of conductivity and irritability. The toxic symptoms of this drug are chiefly those of cinchonism: tinnitus, deafness, urticaria, nausea, vomiting, diarrhea and occasionally ventricular tachycardia, intraventricular block or even ventricular fibrillation.

The indications for quinidine are not the same as for digitalis because the actions of the two drugs are different. Quinidine will stop certain cases of auricular fibrillation and flutter, especially those occurring in relatively young individuals without heart failure. It is also sometimes of definite value in stopping paroxysmal tachycardias. Digitalis will not usually restore normal rhythm in flutter or fibrillation and is of little or no value in the treatment of paroxysmal tachycardia. To prevent the recurrence of paroxysmal tachycardia, auricular flutter or fibrillation, three grains of quinidine sulphate given daily, three or four times, may be very beneficial. In cases of active flutter, fibrillation or paroxysmal tachycardia three grains should be given every hour or six grains every two hours until normal rhythm ensues or toxic symptoms intervene. The more simple methods of treating paroxysmal tachycardia should be tried first, for a large number of these attacks subside spontaneously within twenty-four hours. It is probably best not to exceed a total dose of thirty to forty grains of quinidine in each twenty-four hours.

Occasionally intravenous quinidine is indicated and this is best administered by a slow drip, fifty grains of quinidine sulphate to 500 cc. of sterile saline or 5 per cent glucose solution. In the event that quinidine therapy is not successful in abolishing the abnormal rhythm digitalization should be resorted to. When digitalis has reduced flutter to fibrillation, if normal rhythm does not come spontaneously, it may be sometimes produced by a return to quinidine therapy.

Patients receiving quinidine should be watched even more carefully than those under digitalis and frequently when large doses are given hospitalization is advisable.

Another case history is presented as an example of one type of quinidine therapy.

Mrs. J. B. M., aged forty-eight years, was first seen in July, 1936. At that time she was complaining of palpitation of the heart of four weeks' duration. She had rheumatic fever at the age of twenty, and was said to have suffered heart damage at that time. During the present illness she had been in bed and was taking digitalis without relief.

Physical examination showed a grossly irregular heart rate at 104 to the minute. The heart was enlarged and there was a loud systolic murmur at the cardiac apex. There were no signs of heart failure. The problem here seemed to be that of a nervous woman with a rheumatic heart and paroxysmal attacks of auricular fibrillation. She was extremely sensitive to the irregularity, and, consequently, digitalis, although it did slow the ventricular rate, had no effect on the primary symptom, palpitation. She was started on quinidine in three grain doses every hour with orders to reduce the drug to a maintenance dose with cessation of palpitation. The irregularity was very persistent and she took twenty-seven grains of quinidine daily for five days before normal rhythm was restored, but the palpitation was relieved immediately with the onset of normal rhythm. After that she was put on a maintenance dose of three 3-grain tablets daily. Since then the patient has learned to control the dose of quinidine fairly well and it is only when she stops the maintenance dose that she has a return of fibrillation. When this occurs she increases the dosage until palpitation is relieved.

In closing, I might qualify my statement concerning the indications for the use of digitalis and say that some border-line cases having heart disease and breathlessness on exertion or paroxysmal dyspnea may well be benefited by digitalization, and, likewise, rare cases of paroxysmal auricular tachycardia which do not respond to the usual measures. However, I wish to emphasize that, first, the type of heart disease should be recognized, then a plan of treatment mapped out with utilization of the best drug for that particular condition, and, finally, the drug should be given a fair trial and administered in the proper dosage before it is abandoned.

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A DISCUSSION OF RENAL FUNCTION TESTS.*

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In discussing tests of renal function, it would seem best to initiate such a topic with a few brief points on the anatomy and physiology of the various parts concerned, as it is the function and integrity of such units in the kidney that these tests depend on for their functional efficiency.

The kidney is a compound tubular gland formed of two parts, the cortex and medulla, covered by a capsule. Each kidney normally weighs 125-170 gms. Both cortex and medulla are composed of uriniferous tubules which have a straight course in the medulla and a tortuous one in the cortex, where they originate as the glomerulus or corpuscle of Malpighi. The medulla in man is divided into twelve portions called pyramids, conical in shape, with the base directed toward the cortex and the apex pointing into the medulla toward the calices minor of the kidney pelvis.

The collecting tubules form the larger vessels and they run a relatively straight course through the medulla in contrast to the tortuous course pursued by the proximal and distal convoluted tubules in close relationship to the glomerulus within the cortex. As these larger tubules approach the apex of a pyramid they coalesce to form the still larger ducts of Bellini, which empty to the calices minor of the kidney pelvis.

In referring to the function of the tubules, I shall be speaking of the section of this between the glomerulus and the junction of it with the collecting tubule, i.e., the proximal and distal convoluted tubules in their entirety, including the ascending and descending limbs of Henle. Of course, in picturing the kidney as a whole it must be remembered that it is composed of many thousands of such units; a unit being composed of a glomerulus, tubule and arteriole. All of these units are not working together at one time under ordinary conditions, but in alternate groups with others held in reserve.

The first formation of urine is in the glomerulus where it is obtained from the blood by a process of filtration from the efferent arteriole, at which time certain products are extracted. This filtration is dependent in the main upon two factors, the blood pressure and the osmotic pressure. The blood pressure in the glomerular capillary or arteriole is more than one-half that of the pressure in the aorta.

One glomerulus puts out about 0.001 cc. of urine per hour. The total glomerular urine filtration is from two to eight liters per hour, but the glomerular filtrate itself is three to four times the amount of the actual urine excreted. The average bladder urine output is approximately 1 cc. per minute. The present concept of kidney function is that the glomerular filtrate is protein free unless there has been some tissue damage to the glomerulus. It is now believed that the tubules elaborate a concentrated volume of urine from the glomerular filtrate; that they reabsorb water, protein and certain salts and that they excrete dyes, urea, acid and salts. The reabsorption is by a process of diffusion and cellular activity. The change of urine pH to acid is thought to take place in the distal convoluted tubule.

It is essential that there be an adequate intake of fluid and salt per day in order to maintain an adequate output of urine. Dehydration of itself can cause nitrogen retention, although the kidney be physiologically capable of good function and able to eliminate a concentrated urine from a small volume of fluid intake. An output of at least 500 cc. per day of urine is necessary under normal circumstances in order to avoid nitrogen retention.

Physiologically, the normal kidney performs a definite role in helping to maintain a normal acid base balance of the tissues and blood, done in the following manner. The fixed acids are mostly eliminated by the kidney in the form of sodium salts. When the excretion of sodium goes over a certain point with the consequent loss of base, as happens in certain pathological conditions, the following processes occur:

1. Change of the pH of the urine to a lower level.
2. The excretion of ammonia rises as the NH_4 radical is utilized in place of the Na radical to conserve base. When this begins to fail, neutral urea is converted into alkaline NH_4.
3. Ethereal sulphates and phosphates appear in the urine.
4. Acids are excreted as acid salts. A quantitative determination of these substances in the urine will show them present in abnormal amount, and

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thus will warn of an early or beginning imbalance in the acid-base equilibrium.

In the estimation of renal function, several factors must be considered together when it is desired to gain a complete picture of the amount, if any, of renal damage present. These factors are as follows:

1. The ability of the kidney to excrete dyes, and certain chemical substances.
2. Its ability to dilute and concentrate the urine.
3. Its ability to excrete urea.

Unfortunately, there is no one test that will answer all these criteriae, and, therefore, several are usually done in conjunction on the same study. Renal function tests are consequently divided into several groups according to their type. Three main groups will be considered.

GROUP 1

Ability of the kidney to dilute and concentrate the urine.

(a) The Mosenthal test.
(b) Volhard-Farr dilution and concentration test.

GROUP 2

Ability of the kidney to eliminate products of protein catabolism.

(a) Chemical determination of blood and urine.
  (1) N PN and blood creatinine values.
  (2) MacLean index.
  (3) Urea ratio.
  (4) Urea clearance.

GROUP 3

Miscellaneous.

(a) PSP dye test.
(b) Salivary index.
(c) Urea tolerance test.

Obviously, it will be impossible to discuss each one of these procedures individually, nor is it necessary that they should all be performed since there is the matter of choice, but important features of several of the most commonly employed will be discussed. The term "renal insufficiency" will here be used, generally speaking, to denote renal damage with nitrogen retention, and "renal impairment" will be used to denote damage or dysfunction with no nitrogen retention.

Both Mosenthal and Freyburg have pointed out that renal impairment may exist with no elevation of nitrogen in the blood; hence, a chemical determination of these constituents alone may give a false sense of security. The dilution and concentration tests are important aids here as they are the more sensitive indicators of early renal impairment and will show the dysfunction before there is any demonstrable nitrogen retention.

The Mosenthal test answers this purpose admirably and it is a simple procedure. No preparation of the patient is necessary.

Technique (modified): Normal diet. No fluid is given on the day of the test except 500 cc. with each meal. No fluid is taken after 6 P. M. on the day preceding the test. The bladder is emptied at 8 A. M., and the urine collected in separate specimens every second hour until 8 P. M. Night urine is collected as a single total specimen from 8 P. M. until 8 A. M. the following morning. The volume and specific gravity of each specimen are determined.

Interpretation:

(1) The volume of the night urine should not exceed 500 cc.

(2) The specific gravity of the night specimen should be 1,020 or above.

(3) There should be a difference of at least nine points between the highest and lowest specific gravity.

In interpreting the specific gravity of the urine over a given period, the following variations must be taken into account:

High Fixed Specific Gravity:
  (a) Excretion of sugar.
  (b) Dehydration.
  (c) Cardiac decompensation.
  (d) Acute diffuse glomerulonephritis with hemorrhagic tendency.

Low Specific Gravity (Not necessarily an indication of impaired renal function):
  (a) Large or excessive fluid intake.
  (b) Diabetes insipidus.
  (c) A localized inflammation of the G.U. tract, such as cystitis or pyelitis.

Before discussing both the advantages and limitations of the test a few remarks on the dilution and concentration test of Volhard are apropos, as the discussion will apply equally to both. The dilution part of this test is now being discarded, due to lack of sensitivity and unsatisfactory results:

Technique:

(a) Dilution Test: No food after 6 P. M. on day preceding test. Patient is given 1,500 cc. of water within thirty minutes at 8 A. M. Urine is collected at hourly or half-hourly intervals for next four hours. Volume and specific gravity of each specimen is de-

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termined. Normally, an amount will be excreted within four hours nearly equal to or occasionally just in excess of the fluid given (1,200-1,800 cc.). The specific gravity of at least one specimen should be under 1,005.

(b) Concentration Test: No further fluid is given after 8 A. M. on day of test and patient is given a dry diet for next twenty-four hours. The urine is collected every two hours, as in the Mosenthal test. The swing in the specific gravity should be from a low figure to 1,028 or above.

The dilution and concentration test does not present any superiority over the Mosenthal test and, as has been mentioned, the dilution half of the test is now being discarded. Lashmet and Newburgh have recently presented an improved concentration test, based on a somewhat similar technique, but requiring more laboratory procedure in estimating the amount of the various urinary solids and the administration of a specially calculated diet. Freyburg states that a concentration test will show a deficit before the urea clearance becomes impaired, especially in early or recovering cases of renal damage, and in cases of recovery the urea clearance may be normal long before the former. Besides their greater sensitivity in early cases they are important indicators as to fluid intake as the degree of functional impairment of the kidneys governs to a large extent the daily fluid requirements of the patient. Despite their sensitivity and usefulness in early cases, however, their use is very definitely limited in late or severe renal damage as in these latter there is a tendency for the specific gravity to become fixed at 1,010 and further renal dysfunction is not reflected by any corresponding decrease. This is most important as it is here that other tests must be utilized, especially the urea clearance.

Chemical determination of certain constituents of the blood is widely used in determining the functional integrity of the kidney. The rise of nitrogenous products in the blood is taken to indicate faulty elimination through the renal organs with one or two exceptions which will be mentioned. The normal non-protein nitrogen (Folin Wu) is from 25-35 mgs. per 100 cc. The components of the non-protein nitrogen are: (1) Uric acid; (2) Urea; (3) Creatinine; (4) Amino acids; (5) Rest nitrogen (in the RBC). Besides the determination of the total non-protein nitrogen the first three of its components are commonly read either independently or in conjunction with it. The uric acid is the first component to rise in early renal insufficiency, but its sensitivity in this respect can not be utilized because other non-renal conditions will also provoke a rise in its value, such as gout, leukemia, polyarthritis, hypertension. The urea is next in elevation, ahead of the non-protein nitrogen, and the creatinine value the last. Where this has risen and no obstruction exists, maximum damage has occurred. There is always a definite ratio maintained between the urea and the total non-protein nitrogen as has been shown by Mosenthal and Bruger. It has been pointed out also that if there is a disproportionate increase between the urea and the creatinine either an obstructive uropathy or a primary contracted (arteriosclerotic) kidney should be looked for. It should also be mentioned here that hyperthyroidism will increase both the creatinine and creatin values in the urine.

Non-renal conditions causing an elevation of the blood urea nitrogen are:

(1) Dehydration.
  - (a) Loss of G.I. secretions.
    - (1) Carcinoma.
    - (2) Pylorospasm.
    - (3) Diarrhea.
    - (4) Persistent vomiting.
  - (b) Hemorrhage from the gastro-intestinal tract.
  - (c) Loss of extracellular fluids.
    - (1) Diabetes.
    - (2) Post-operative dehydration.
  - (d) Loss of normal tissue fluid exchange.
    - (1) Addison's disease.
    - (2) Histamine shock.

A possible means, however, of differentiating between a renal and non-renal azotemia in some cases is in the level of the blood chlorides. In non-renal azotemia the blood chlorides are low, whereas in uncomplicated Bright's disease the chlorides usually are normal or slightly elevated.

Mosenthal and Bruger have shown that there is always a difinite ratio between the urea and non-protein nitrogen, and that this ratio, while not as sensitive an index of renal insufficiency as the urea clearance test, is more sensitive than the blood urea alone and will follow larger variations in the clearance with satisfactory accuracy. It is not offered as a substitute of the latter, but it is distinctly useful. The ratio is simply determined by the following calculation:

$$\frac{100 \times \text{Blood Urea Nitrogen}}{\text{Non-protein Nitrogen}} = X \text{ (the ratio)}$$

In a series of cases they found the normal ratio not to exceed 46 per cent. When it is over this some degree of renal insufficiency exists. In a damaged kidney this ratio remains unchanged by fluctuations of the individual values and will show the degree of dysfunction no matter how high the urea. A blood urea of 30 mgs. and non-protein nitrogen of 50 mgs. gives a ratio of sixty. If these values fall by establishment of a diuresis and decreased protein intake to a urea of 15 mgs. and NPN of 20 mgs., the ratio however remains still at 60 per cent indicating the degree of renal dysfunction.

The urea clearance test remains the choice of most observers as a single or individual measure of renal function. It is based on the ability of the kidney to excrete urea from a certain amount of blood within a definite unit of time. This test is a very sensitive indicator of renal insufficiency. In contrast to the concentration tests, whose values will not show progressive renal damage beyond a certain limit, the urea clearance will show progressive renal failure down to the lowest degree compatible with life. With the exception of the very early cases it seems to be at the present time the most satisfactory of the various single tests we have. For the most part this test is now done in the A. M. on a fasting patient as slight variations have been recorded on the normal as a result of feeding.

Technique:

No breakfast.

Bladder emptied at 9 A. M. Specimen is discarded.

Blood for urea determination withdrawn at exactly 9:30.

Urine is collected from 9-10 A. M. at exactly 10 A. M.

Urine is collected from 10-11 A. M. at exactly 11 A. M. (These times must be exact.)

Patient is in bed at complete rest. (200-400 cc. of water may be given after bladder emptying.)

The volume of the urine specimen is carefully measured.

Blood urea and the two urine ureas are determined.

Calculation: Formula for standard urea clearance:

$$\frac{UV}{B} = X\ (75)\ \text{cc.}$$

B—Blood urea in mgm. per 100 cc.

U—Urine urea in mgm. per 100 cc.

V—Volume of the urine in cc. per minute. (Total volume of the specimen divided by 60.)

The above formula is used when V is more than 2 cc. per minute. When V is just 2 cc. or less the formula must be changed to:

$$\frac{U}{B} \sqrt{V} = X\ (54)\ \text{cc.}$$

The result is reported in cc. of normal or as per cent of normal. 70-125 per cent is normal range. Over 125 per cent is regarded as hyperfunction. Less than 5 cc. indicates uremia.

On the above technique there will be two separate V and these are calculated separately as are two urine ureas (1st and 2nd hour urine spec.). The two clearances for the two hours are averaged and reported as the mean urea clearance.

The two clearances should check closely; if there is a wide variation an obstructive uropathy should be looked for. Most of the unsatisfactory results with the test are due to faulty calculations and incorrect timing in the collection of specimens.

One of the most widely used tests for renal function is the phenolsulphonthalein dye excretion test. This test has a definite and useful place in urology, but its limitations and correct interpretation should be well understood before too much weight is attached to a result. Its most useful phase is in cystoscopic examination to determine the comparative output of each kidney, but it is not regarded as a particularly sensitive test of renal function in its total two hour elimination, as a low reading is most difficult to evaluate and may not mean a great deal in regard to actual kidney function.

Phenolsulphonthalein Dye Excretion Test:

Bladder is emptied at start of test. Exactly 1 cc. of the dye is injected either intravenously or intramuscularly. The amount is well measured in a tuberculin syringe for the most exact reading. The time of this injection is recorded. The patient is given 500 cc. of water by mouth. In exactly one hour from the time of injection the first specimen is collected and labeled first-hour specimen. The patient is given 500 cc. of water by mouth. The second specimen is collected in exactly two hours from the time of injection, labeled second-hour specimen.

Interpretation: The specimens are each alkalinized, diluted to 1,000 cc. and measured by color comparison with proper indicators for percentage ex-

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cretion. The total excretion for two hours is calculated.

Normal range for the two hours is from 50-80 per cent; first hour is from 35-50 per cent; second hour is from 20-30 per cent.

This test is not reliable in the presence of tissue edema or circulatory failure as the passage of the dye to the kidney is dependent upon the integrity of the circulation.

The intravenous method is somewhat preferable to the intramuscular due to a slight circulatory lag in the latter.

Chapman and Halstead have pointed out that the excretion (per cent amount) during the first fifteen minutes is a much more sensitive indicator of renal impairment than the total two-hour reading, and in their series this modification compared, in results, quite favorably with the urea clearance as an indication of renal efficiency.

These fractional specimens may best be procured by means of a catheter which is left in place during the test. The appearance time of the dye in the urine may be calculated by this technique. These last two readings are regarded as a more exact interpretation of the dye excretion than the total two hour, two specimen method.

In regard to the present view on this particular test as a measure of renal efficiency, Van Slyke and others express the opinion that the total two-hour PSP excretion measures impairment of kidney function only when severe renal damage exists. Freyberg gives as his opinion, based on a large series, that a low dye excretion may not be a true indication of renal impairment, but that a normal reading is definite confirmation of a normally functioning kidney. He feels that most often false results are recorded due to a failure to obtain all the urine formed and that even an indwelling catheter will not entirely overcome this fault.

This paper has attempted to evaluate the present most commonly employed tests of renal function and to show that no one procedure will give a complete picture of existing conditions in all types of cases. In cases of edema or circulatory failure the concentration and dilution tests will give false results. Some writers advise a correction of 0.003 in the specific gravity for each 1 per cent of albumen in the urine, but unless the proteinuria is unusually large in amount this is not necessary. In general, a concentration test accompanied by blood chemistry or by a urea ratio or urea clearance would seem to be the preferable procedure on any given case.

SUMMARY

In summing up the tests presented, the following points deserve repetition:

(1) The dilution and concentration tests are the most sensitive in detecting early renal damage in the absence of edema or circulatory failure and will show these abnormalities before the urea clearance is affected.

(2) In severe renal damage the concentration tests tend to become fixed at a certain constant minimum value below which further renal damage can not be read, but which can be read by the urea clearance.

(3) The urea clearance test is a sensitive indication of renal impairment and will record progressive severe renal damage to the lowest function compatible with life.

(4) In the calculations for the urea, special attention must be paid to securing specimens which have been timed exactly, to the calculation of the V in the formula, and to the use of the correct formula.

(5) The urea ratio is said to parallel the urea clearance result and may be used as an approximate check upon the result.

(6) Determination of the pH of the urine, formation of ethereal sulphates and phosphates in abnormal amount, and quantitative estimation of ammonia in the urine will give earlier indication of a beginning acidosis than the tests for acetone and diacetic acid, which do not become positive until later.

Wainwright Building.

NON-DIABETIC GLYCOSURIA—WITH REPORT OF CASES.

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Non-diabetic glycosuria is of relatively frequent occurrence, having been found by Joslin[1] in 15.8 per cent of 9,000 cases of glycosuria. In spite of its prevalence, however, the condition at times goes unrecognized as the patients are subjected to a diabetic regime. In some instances a long period of observation is necessary before a case of glycosuria can be put in a non-diabetic group. Some of these have been classified by Joslin as potential diabetics. Marble[1] has classified cases of non-diabetic glycosuria as renal glycosuria, which includes glycosuria of pregnancy; potential diabetes mellitus; and a miscellaneous group including glycosuria associated with hyperthyroidism, brain tumors, etc.

The diagnosis of diabetes mellitus may be made at least tentatively on a fasting venous blood sugar of 0.140 per cent or a value after a meal of 0.170 per cent. In certain cases a formal sugar tolerance test may be necessary. In non-diabetic cases the blood sugar should not exceed 0.170 per cent at its peak and should return approximately to the fasting level in two hours. If a single blood sugar determination is made, frequently more information can be obtained if the blood is drawn one hour after meal than if it is drawn with the patient fasting. A fermentation test will help to determine the presence of glucose.

The following cases of non-diabetic glycosuria are reported. Three of these cases received insulin for varying lengths of time, one for nearly nine years.

Case I: V. H., female, age sixteen years, a white high school girl, was seen on January 25, 1938, complaining of diabetes of eight years' duration and amenorrhea of three months. Her parents and several siblings were living and well, and there was no known incidence of diabetes. The menarche occurred when she was thirteen years old. The periods had always been somewhat irregular. In July, 1929, she was found to have glycosuria and put on a diabetic regime with restricted diet and insulin—units 12-8-10. In September, 1929, a blood sugar value (presumably fasting) was recorded as 0.102 per cent. In November, 1929, she was admitted to a hospital for tonsillectomy. She was on a diet and insulin, but excreted as much as 6 gms. of sugar a day. A single blood determination was 0.089 per cent. Tonsillectomy was uneventful.

Over the succeeding years she apparently got along well, but had frequent hypoglycemic reactions, once going into coma. Gradually she neglected her prescribed diet and ate what she wanted. The insulin was reduced to ten units twice a day, which she was still taking. She had not had polydipsia, polyuria, or anything suggesting acidosis.

Physical examination was essentially negative. She was well developed and nourished. Height was five feet, three inches, and weight 121 pounds. Urine gave a one plus test with Benedict's solution. Fasting blood sugar was 0.110 per cent. On March 2, 1938, the urine showed a two plus test for sugar, and on March 29, blood sugar obtained two hours after a meal was 0.084 per cent. On April 9, 1938, a sugar tolerance test was done, using 93 gms. of glucose. The results were as follows: fasting—0.092 per cent, one-half hour—0.158 per cent, one hour—0.145 per cent, two hours—0.089 per cent, three hours—0.052 per cent. Urine specimens obtained over this period were all negative for sugar.

The patient then discontinued insulin and now, over a year later, feels and looks entirely well.

Case II: L. C. L., a twenty-eight-year-old single white man, was seen on March 10, 1939, complaining of weakness and sugar in the urine. The family history showed no incidence of diabetes. His symptoms began in July, 1937, when he developed weakness, lassitude, and slight weight loss. He never had polydipsia, polyuria, or polyphagia, but did have some loss of libido. He was found to have glycosuria. B.M.R. was minus 25 per cent. Subsequently, a blood sugar was reported as 0.136 per cent. In July, 1938, he noted marked drowsiness and lethargy. He was then started on protamine insulin units twenty-eight once a day. His diet was not regulated to any extent.

When seen in March, 1939, his physical examination was essentially negative. Height was five feet eight inches, and weight 131 pounds. Hgb. 14.8 gms. WBC 4,900. Urine showed sugar three plus.

On March 16, 1939, a glucose tolerance test was done, using 75 gms. of glucose. Results: fasting—

0.103 per cent, one-half hour—0.143 per cent, one and one-half hours—0.127 per cent, two and one-half hours—0.104 per cent. Urine specimens over this period were: fasting-trace, one-half hour—one plus, one and one-half hours—two plus, two and one-half hours—two plus.

The insulin was then discontinued with some improvement in his strength, though when last seen he complained of lassitude.

Case III: M. B. A., a nineteen-year-old married woman, was seen on April 3, 1937. She was three months pregnant and was referred by her physician because sugar was found in the urine. Family history showed that her parents and nine siblings were in good health. There was no history of diabetes. Her general health had been good. Since the beginning of this, her first pregnancy, she had had polydipsia, frequency, and nocturia. Urine specimens had shown sugar which gave a positive fermentation test. The Wassermann was negative. Urine showed a specific gravity of 1.022, and was normal except for a one plus test for sugar. Blood sugar two hours after a meal was 0.104 per cent.

It was thought that she had a benign glycosuria, and no treatment was advised. She continued to show moderate amounts of sugar in the urine. At eight months she became edematous and was delivered of a normal female infant. In 1938 she again became pregnant, and on several occasions showed a small amount of sugar in the urine. Pregnancy was otherwise uneventful, and she was delivered of a normal full-term infant.

Case IV: R. B. A., a twenty-six-year-old woman, was seen on July 1, 1937. She was at term and was referred because the urine showed large amounts of sugar. The family history showed that one brother had diabetes mellitus and one sister had what was thought to be benign glycosuria. The patient's past health had been good. This was her first pregnancy. She had had some polyuria, no polydipsia. There had been a gain of twenty-five pounds in weight.

Specimens of urine and blood, taken before she had had breakfast, showed a complete reduction of Benedict's solution with the urine, and a blood sugar value of 0.093 per cent. A fermentation test showed the sugar to be fermentable. No treatment was advised and she was delivered of a normal infant.

She was again seen on May 5, 1938. At this time she was approximately four and one-half months pregnant, and was showing large amounts of sugar, in spite of the fact that for three months she had been taking eight to ten units of insulin daily. The urine showed a two plus test for sugar, and blood sugar was 0.100 per cent. She was advised to discontinue the use of insulin. She was last seen on July 14, 1938. Her general condition was good. Blood sugar not fasting was 0.084 per cent.

Case V: E. W. A., a fifteen-year-old single colored girl, was seen on October 22, 1936. She was referred from prenatal clinic because sugar was found in the urine. She was five and one-half months pregnant. Family history showed no incidence of diabetes. Her past health had been good. She had not had polydipsia, polyphagia, nocturia, weakness, or loss of weight. The Wassermann test was positive. A sugar tolerance test was done: fasting—0.084 per cent, one-half hour—0.129 per cent, one hour—0.106 per cent, two hours—0.073 per cent, three hours—0.073 per cent. Urine: fasting—two plus, one-half hour—three plus, one hour—three plus, two hours—three plus. Fermentation test was positive. On February 9, 1937, she was delivered of a normal infant.

DISCUSSION

None of these cases gave a clinical history very suggestive of diabetes mellitus. With the exception of Cases II and III, the patients had no symptoms. One of these complained of weakness, lassitude, and some weight loss, and the other had amenorrhea. Physical examination was essentially normal in all cases. Only Case III gave a positive family history of diabetes mellitus.

The pathological physiology involved in benign glycosuria is not known. There are no signs or symptoms of renal inadequacy except the glycosuria. The blood sugar may be somewhat on the low side of normal. Cases I, II, and IV were given insulin for varying periods of time. Such treatment has relatively little influence on the amount of sugar excreted. Case I excreted variable amounts of sugar when taking insulin, but after taking glucose for a sugar tolerance test, excreted no sugar at all. The benign course of the condition is well illustrated in Case I, which was observed for a period of nearly nine years. Further observation is indicated in the remaining cases.

REFERENCES

Joslin: Treatment of Diabetes Mellitus, 6th ed.

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PARESIS AND THE NEGRO.*

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In the year 1938, Virginia admitted to its State Hospitals 125 psychotic white patients, as compared with 130 psychotic negroes per 100,000 population. But there were fifteen negro paretics to every two white paretics admitted. For the period 1936-1938, the percentage of colored paretics among the new admissions was 14.47, and for the same period the percentage of white paretics was 3.4. From these facts we can deduce that the total number of psychotic patients admitted to the State Hospitals showed but little difference between the white and the colored, but the ratio of paretics between the colored and the white is greatly disproportionate.

The division of Venereal Disease Control of Virginia reported for the year 1938, a total syphilitic population of 11,727, of which number 8,510 were negro and 3,217 were white. They further reported 31 per cent latent syphilis among the colored and 18 per cent of latent syphilis among the white.

It has been said that 25 per cent of all cases of untreated syphilis will show some evidence of involvement of the central nervous system. It is axiomatic that the great potential source of neuro-syphilis lies in the unsuspecting individuals, in those whose early lesions were either unrecognized or ignored. In a series of seventy-five paretics recently admitted to Central State Hospital, there was 46 per cent who had received no anti-luetic treatment; 33 per cent who had received inadequate treatment; and 21 per cent who received adequate treatment. It is with a feeling of professional sadness that we recall the number of patients who received their first diagnostic lumbar puncture only when they entered the State Hospital. The elimination of paresis would seem to lie not in cure but in prevention.

Dementia paralytica is the most devastating form of neuro-syphilis. Untreated, its sufferers die within a few years, with the most complete dissolution of mind and body.

It is evident to psychiatrists that paresis can simulate any of the minor or major psychoses. Studies of the seventy-five paretics mentioned above showed 35 per cent of them with marked agitation, 13 per cent showed marked depression, and 52 per cent were of the dementing type. Incidently, for many years Virginia has reported a preponderance of manic psychoses among the negroes.

*Presented at the joint meeting of the North Carolina and Virginia Neuro-Psychiatric Societies, at Chapel Hill, North Carolina, October 25, 1939.

TREATMENT

The haven of recovery that we seek for our patients can be reached by following more than one therapeutic trail.

In our service the negro responds well to quartan malaria. In about 55 per cent of the cases malaria can be promptly induced. In resistant cases reinoculation has proven unsatisfactory, only two cases out of twenty responding to the second or third inoculation. Patients that failed to respond to malaria inoculation are treated by means of electropyrexia. In the face of frank or even presumptive clinical findings, plus a positive serology, we advocate the immediate use of non-specific therapy. To temporize with the hope that the patient will respond to chemotherapy is to court disaster. Each case of paresis must be handled individually. Our results in the treatment of juvenile paresis in the negro have been very unsatisfactory.

Paretics with manic manifestations constitute a great problem. Efforts must be made to quiet the patient in his excitement and at the same time not delay the treatment. The use of continuous baths and mild sedation are of great help, and we have observed that many paretics with cyclothymiac make-up are quieted with the onset of the malaria paroxysms.

Precautions against suicide should be taken with the depressed paretic as with any depressed patient. The major factors influencing the prognosis are: age of the patient, duration of paretic symptoms, type of paresis, history of convulsions and general physical condition. The number of paroxysms induced should be based entirely on clinical factors, although, on an average, eight to fourteen paroxysms are usually adequate. The onset of the initial paroxysm can be induced often by small quantities of adrenalin or by hot or cold baths. We feel that complete bed rest once fever has been instituted is a great safe-guard to the patient, and no patient should be ambulatory until the malaria has been terminated for at least one week.

XUM

Adequate and careful nursing is a prime requisite during the patient's course of malaria. Signs of exhaustion, impending circulatory collapse, and severe anemia, necessitate energetic intervention. General supportive measures are not to be neglected. An adequate, easily digestible diet, high in carbohydrates, with the maintenance of an adequate vitamin balance, and with emphasis on vitamin B, is advantageous. The malaria can be promptly terminated by the use of quinine or by the arsphenamines. Barring ocular contra-indications, a long course of tryparsamid with intervals of bismuth therapy, following the fever, is the treatment of choice.

The value of fever therapy in the treatment of dementia paralytica can stand on its own merits. Its true value lies in its use in unselected cases.

Due to the great number of patients to be treated at Central State Hospital, malaria is favored over electro-pyrexia. Machines are reserved for those patients who are immune to inoculation with malaria. In using electro-pyrexia, our patients are treated twice a week. The temperature is maintained from six to eight hours, at 104°-105°. Mild sedation and a maintenance of the chloride balance is essential. Chemotherapy is administered during the many weeks that the patient is receiving artificial fever. A well-trained personnel must be ever alert to the emergncies which occasionally arise in this method of treatment. Our results have been satisfactory with both malaria and electro-pyrexia.

In a series of eighty-eight cases treated for general paresis, thirty-one made good social recoveries; nineteen were improved but remained at the hospital; twenty-seven were unimproved, and eleven died. Of these deaths, six occurred during the treatment. This shows 35.11 per cent of social recoveries, and 12.5 per cent of deaths. During treatment there was a percentage of 6.7 of deaths. Through the years the percentage of deaths due to paresis in the entire hospital population is gradually diminishing.

As in all illnesses, successful outcome depends upon the attitude and cooperation of the patient during convalescence. To that race which is noted for its serenity in the face of disaster, and its apparent indifference to the fears that so often beset the white race, it is necessary to educate them and their families to the full appreciation of the seriousness of this disease. The need for a long period of treatment should be carefully explained, and at least one year's hospitalization should be encouraged. Cooperation with a competent general practitioner or an established clinic should be insisted upon, before the patient leaves the mental hospital.

It is the responsibility of those who treat the negro paretic to make certain that after treatment shall be assured. This involves investigation of the financial condition of the patient. The great help offered by the Public Health Service should be made available for these patients whose great difficulty is so often on a financial basis. Patients from rural districts, where further treatment, due to the patient's indifference, will most likely be haphazard or inadequate, would better remain in the hospital for a prolonged period of time.

It is obvious that the control of early syphilis lies in the hands of others than those who labor in the State Hospitals. But the care of the furloughed patient is the direct responsibility of the State Hospital. Virginia, through its psychiatric leaders, appreciates this fact, and plans are being formulated for the further establishment of out-patient clinics. In no field of mental disease is the need for this care more striking than in the furloughed patient who has endured the ravages of neuro-syphilis. No one can deny the sense of futility when we have our patients returned in a moribund condition with the terse comment, "No further treatment after leaving the hospital."

SUMMARY

1. In Virginia, although the percentage of psychoses is evenly divided between the white and the negro per unit of population, the negro paretics greatly outnumber the white cases.

2. This is thought due entirely to the great reservoir of negro syphilitics in the State.

3. The incidence of paresis among the negro can be reduced by the early and vigorous treatment of general syphilis.

4. The negro responds favorably to the accepted methods of treatment for dementia paralytica.

5. Adequate follow-up care is an essential after the patient leaves the hospital.

BIBLIOGRAPHY

J. E. Moore's Modern Treatment of Syphilis. Report of State Hospital Board of Virginia, 1936-1938. Division of Venereal Disease Control, Virginia Health Department, 1938.

SULFAPYRIDINE IN THE TREATMENT OF LOBAR PNEUMONIA—REPORT OF THIRTY-ONE CASES.*

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New York City.

The first contribution on this new drug 2(P-aminobenzenesulphonamido) pyridine is credited to Whitby[1] of England in May, 1938, who published experiments showing the effect on pneumococcal infections in mice. Evans and Gaisford[2] of England first reported a series of 100 cases of pneumococcus pneumonia treated with sulfapyridine (M. & B. 693, "Dagenan") and a mortality rate of 6 per cent against a mortality rate of 27 per cent in 100 control cases untreated with sulfapyridine. Flippin,[3] Lockwood, Pepper,[3] and Schwartz[4] were the first in the United States to report 100 cases of pneumonia treated with sulfapyridine. Since then many authors, namely, Meakins and Hanson;[5] Barnett *et al*;[6] Cutts *et al*;[7] MacColl;[8] Smith and Needles[9] have reported cases of pneumonia successfully treated with sulfapyridine and a mortality rate of 3 to 8 per cent obtained.

CASES SELECTED

The thirty-one (31) cases reported in this series showed definite signs and symptoms of lobar pneumonia, and the diagnosis was definitely established by confirmation with X-ray and sputum examination. Blood cultures were taken in the majority of cases, but no positive cultures were obtained.

TABLE 1

AGE	ADM'N TEMP.	LOBE	ADM'N W.B.C.	TYPE	DRUG COMP.
30	103.5	R.M.	21,600	I	N. & V.[1]
6	103.6	R.L.	24,400	I	N. & V.
45	104.5	R.L.	17,200	I	N. & V.
4	104.5	R.M. & R.L.	41,000	I	—o—
54	105.5	R.L.L.	23,500	I	N. & V.
51	102.6	L.L.L.	20,150	II	N. only
31	103.5	R.M.L.	18,300	II	N. & V.
62	103.5	R.U.L. & M.L.	9,650	3	Died
28	104.5	L.L.L.	29,500	3	N. & V.
70	105	R.L.L.	19,900	3	N. & V.
57	102.5	R.M.L.	16,200	3	—o—
63	103	R.L.L.	26,100	3	N.-V. & Cyan.[2]
63	103.5	R.U.L.	16,350	3	N.-V. & Cyan.
52	102.5	L.L.L.	18,600	3	N. & V.
59	103.8	R.U.L.	19,200	3	N. & V.

*Read before the Clinical Society of The New York Polyclinic Medical School and Hospital, October 2, 1939.
From the Medical and Pediatric Service, New York Polyclinic Medical School and Hospital, New York, N. Y.
[1]Nauser and Vomiting.
[2]Cyanosis.

TABLE 1

AGE	ADM'N TEMP.	LOBE	ADM'N W.B.C.	TYPE	DRUG COMP.
19	103.6	R.L.L.	21,100	IV	Rash
65	103	R.L.L.	28,900	VII	—o—
41	104	R.U.L.	28,200	VII	N. & V.
57	102.5	R.M.L.	16,800	VII	N. & V.
13	104	L.L.L.	27,400	VIII	—o—
57	104.2	R.L.L.	22,400	VIII	N. & V.
35	102.5	R.L.L.	19,700	X	—o—
48	103	R.L.L.	28,100	XI	N. & V.
11	104.6	L.L.L.	30,200	XII	N. only
74	103.5	R.L.L.	27,800	14	N. & V.
72	102.8	R.L.L.	21,600	14	N. & V.
38	103.6	R.L.L.	17,600	15	N. & V.
34	104	L.U.L.	27,800	18	—o—
57	105	L.L.L.	30,800	18	N. & V.
16	104.5	L.L.L.	27,800	19	N. & V.
38	103.2	R.M.L.	18,200	20	—o—

Complete blood counts were taken frequently for possible development of complications, chiefly renal and agranulocytosis.

All cases, with the exception of the one that died, received sulfapyridine within forty-eight hours following onset of symptoms. The case that died had been sick several days before admission.

SULFAPYRIDINE ADMINISTRATION AND DOSAGE

Each patient had the sputum typed, and a complete blood count taken prior to commencing treatment. Two (2.0) grams was given as the initial dose, and then one (1.0) gram repeated every four hours until the temperature had remained normal for forty-eight hours; thereafter one (1.0) gram continued three times a day for several days.

TABLE 2
COMPARISON OF LOBES AFFECTED

LOBE	NO. CASES	PERCENTAGE
R.L.L.	15	48.4
L.L.L.	7	22.6
R.M.L.	6	19.4
R.U.L.	2	6.4
L.U.L.	1	3.2

Sodium bicarbonate 0.5 to 1.0 gram was given with each dose of sulfapyridine for supposedly more rapid absorption, as reported by Marshall *et al*[10] in his experiments with dogs. For patients that had difficulty in swallowing the tablets the sulfapyridine

was suspended in Kalak water, which made an effervescent drink.

TABLE 3
SUMMARY OF NEUFELD TYPING

TYPE	No. CASES	TYPE	No CASES
1	5	11	1
2	2	12	1
3	8	14	2
4	1	15	1
7	3	18	2
8	2	19	1
10	1	20	1

Total 31 cases.

The dosage used for the four cases in children was 0.6 gram every four hours, and continued according to the schedule outlined for adults.

TOXIC REACTIONS

Nausea and vomiting, the chief complication, was present in twenty cases of the total thirty-one. In no case was the vomiting severe enough to cause cessation of the drug. Only two cases had nausea without vomiting. In two cases cyanosis as well as nausea and vomiting was present to such a degree that the drug was discontinued. In both cases where cyanosis occurred type three pneumococcus was the invading organism and the age in each was over sixty. A rash occurred in one case and was so severe that it was thought wise to discontinue the drug. This was in a nineteen-year-old male with type four pneumococcus. Seven cases showed no reaction.

In no case was there agranulocytosis or leucopenia noted although frequent checks were made on the blood counts. A total of five cases of agranulocytosis have been reported in the English literature following sulfapyridine therapy, viz.: Johnston,[11] Coxon and Forbes,[12] Barnett *et al*,[6] Dolgopol and Hobart.[13] All cases had received tremendous doses—forty-nine grams or more—in all except a one-year-old who received twenty-seven grams. Three deaths occurred out of the five cases reported.

SUMMARY AND CONCLUSION

Thirty-one cases of lobar pneumonia treated with sulfapyridine are reported with a mortality rate of 3.3 per cent, which corresponds to the results obtained in other reports.

REFERENCES

1. Whitby, L. E. H.: Chemotherapy of Pneumococcal and Other Infections with 2(P-aminobenzenesulphonamido) Pyridine, *Lancet,* 1:1210; 1938.
2. Evans, G. M., and Gaisford, W. F.: Treatment of Pneumonia with 2(P-aminobenzenesulphonamido) Pyridine, *Lancet,* 2:14, 1938.
3. Flippin, H. F., and Pepper, D. S.: The Use of 2(P-aminobenzenesulphonamido) Pyridine in the Treatment of Pneumonia. *Am. J. M. Sc.,* 196:509, October, 1938.
4. Flippin, H. F., Lockwood, J. S., Pepper, D. S., and Schwartz, L.: The Treatment of Pneumococcic Pneumonia with Sulfapyridine. *J. A. M. A.,* 112:529, 1939; *Am. J. M. Sc.,* p. 22, July, 1939.
5. Meakins, J. C., and Hanson, F. R.: The Treatment of Pneumococcic Pneumonia with Sulfapyridine. *Can. Med. Assn. J.,* Vol. 40:333, 1939.
6. Barnett, H. L., Hartmann, A. F., Perley, A. M., and Ruhoff, M. B.: Treatment of Pneumococcic Infections in Infants and Children with Sulfapyridine. *J. A. M. A.,* 112:518, 1939.
7. Cutts, M., Gormly, C. F., and Burgess, A. M.: Treatment of Lobar Pneumonia with Sulfapyridine. *New Eng. J. Med.,* Vol. 221, p. 263, August, 1939.
8. MacColl, W. A.: Clinical Experience with Sulfapyridine. *Jour. Ped.,* 14:277, 1939.
9. Smith, F. J., Needles, R. J.: Report of Fifty Cases of Acute Lobar Pneumonia in Adults Treated with Sulfapyrldine. *Am. J. Med. Sc.,* p. 19, July, 1939.
10. Marshall, E. K., Emerson, K., and Cutting, W. C.: Para-aminobenzenesulphonamide. Absorption and Excretion: Method of Determination in Urine and Blood. *J. A. M. A.,* 108:953, 1937.
11. Johnston, F. D.: Agranulocytosis Following Treatment with M. and B. 693. *Lancet,* 2:1200, 1938.
12. Coxon, R. V., and Forbes, J. R.: Agranulocytosis Following Administration of M. and B. 693. *Lancet.* 2:1412, 1938.
13. Dolgopol, V. B., Hobart, H. M.: Granulocytopenia in Sulfapyridine Therapy. *J. A. M. A.,* Vol. 113, p. 1012, September,1939.

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SCHIZOPHRENIA MODIFIED BY ALCOHOL.*

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The following case is a further illustration of the idea developed by me in a paper published in 1937,[1] the idea that a schizophrenia can be aborted by alcohol.

C. H., white male, thirty-three years old, second admission. On the first admission the diagnosis of a schizophrenia was made. Several days before the present admission the patient went on a visit to Kentucky. While there he developed a fear complex. He saw and he heard animals making hideous noises, trying to get at him and to harm him. In the General Hospital he said that people looked at him as if he were a ghost and that they talked about him in a mean way; that he gets his instructions from the Lord. Upon admission to the Longview Hospital he appeared very much confused, depressed and sullen. On the next day when this mental examination was made he was found lying quietly in bed, and it was very easy to get his cooperation. He was extremely jovial and kept on nudging confidentially the examiner during the examination. His face was directed towards the examiner, yet it expressed a great deal of suspiciousness and a considerable amount of sullenness. He was rather over-productive in his stream of talk; however, neither a true flight of ideas could be noted, nor did he seem to be markedly incoherent. He kept on using profane and obscene language, and, without doubt, he was boasting.

Patient's Story: (Name of this place?) A tortured smile appears on his face. With a great deal of irritation in his voice he explodes: "Who in the hell would not know the name of this place? Longview Hospital, ain't it? I have been here before." (Why here?) "A little family trouble. I just got tired with other people fooling around with my business." (Why here?) "Because they thought I was nuts. . . ." He then continues nudging confidentially the examiner: "The first time when they sent me here I was nuts . . . I was under the influence of liquor". Boastingly: "It took six months and six days to get out of here." With irritation: "I think I am a damn fool, and that is my business and nobody's else." (Alcohol?) "I have been drinking all of my life. Maybe I started at the age of ten. If I could not get it I would steal it. I had another guy to steal it for me. I had him to do it. I have three kids." Confidentially: "A woman always knows who is the father of the kids, but a man never knows. Are you sure whether your kids are yours? Wait, I know somewhat about television. I'll tell you how many kids you have." Boastingly: "That is judgment. If you got the jigsaw puzzle, you f . . . me; if not, I'll f . . . you! I never in my life liked my wife. I have married only for a change. I did not want to marry her because I was engaged with two or three more. I like all of them very good." Surly: "You can not s . . t me; I had the royalty to f . . . all of them." With ire: "Maybe I had hundred or two hundred, God damn! I guess, they must have given dope to me. I went crazy. I was nuts, to start with, seventeen days afterwards". Sadly: "Right here is the place to see, how much you have done everything. . . ." (Why here?) "Because I am a son of a bitch. I never quit drinking and I won't quit. My father was drinking, and I got it inherited. We have been drinking and playing cards." Confidentially: "When my partner got drunk I would put my hand in his pocket and take his money; afterwards he would believe that he lost his money in play. . . ." Now he is boasting again: "Eh s . . t, the Law was looking for me a hell lot of times!" (Self-abuse?) His face darkens. Incoherently: "I am just like I hope in spirit. . . ." (?) With irritation: "What I don't want, I don't tell, because that is my business! I think a man is a damn fool if he plants all of his seed away! My own nature will take care of it." Emphatically: "Did you see anyone in your life who did not play with himself? Ain't you got your seed planted some where? I got mine planted in a lot of places. I did not like my wife. I married her just to be doing, to have her f . . . ed. Some son of a bitch hit me in the nose in the pool and broke my nose. I was guilty of all G . . damn things but sucking a p. . . . I was in the bush. I got c . . . crazy and gold crazy. I wanted a lot of money and I got it too. I was frenching with women, white women. You don't think it was a God damn negro, do you?"

(Voices?) "Hell no, I do not believe in the God

*From The Longview State Hospital, Cincinnati, Ohio.

damn voices." Delusions: "The God damn cops in Elmwood have been following me. No frame up!" (Suicide?) "Nobody wants to die. Capital punishment is the worst thing in the world. If you want to commit suicide, kill yourself. That would be capital punishment." (7 times 9?) "I am the son of a bitch they have been looking for all of the time and took my finger prints!" (?) "I don't know. I don't like school; this is another bunch of s . . . The fellows will tell you there a lot of things and you don't learn there anything." (Borrowing and stealing?) "No difference if you do not give it back."

No organic memory defects could be elicited. (Something wrong with your mind?) "No." Later: "I am a son of a bitch. . . ." (You do not look that way; you look like a human being!) Tears appear in his eyes. With a trembling voice: "If something presses on your mind, and you do not get it off, you are bound to get crazy. I have been trying to get it off by drinking. Then two months ago I got a liquor mixed up with peaches and spoiled my stomach. I did not drink since that time."

Impression: This is the second attack of a psychosis in a habitual drinker. The present examination has revealed a great deal of character changes which are usually observed in chronic alcoholics, as irritability, joviality, greatly diminished moral inhibitions and infidelity ideas. Before the admission, visual and auditory hallucinations were noted. These and also the presecutory delusions are now disappearing gradually.

Diagnosis: Alcoholic psychosis; acute hallucinosis.

As stated, this case is a further illustration of the idea that a schizophrenia can be aborted by alcohol. This idea is not new. Older experiences, as expressed in the Bible (Proverbs)[2] and by older authors, especially by the Arabian Rhasis[3] and Avicenna,[4] have pointed out that chronic deteriorating psychoses can be improved by frequent administration of alcohol. Present time experiences with alcohol in catatonic stupor—in this country, H. S. Sullivan,[5] seemed to prove that alcohol enables the schizophrenic patient to cover his complexes. This covering of complexes removes factors causing personality splitting and places the schizophrenic patient into the reality. However, these pathogenic complexes are very deeply inveterated in the schizophrenic personality and possess an immense mental activity, causing them to tear the thin layer of reality consciousness, appearing spontaneously or due to treatment, on their surface. It should, therefore, appear reasonable why moderate and habitual drinking, as shown in the cases reported by me in the quoted paper in this case report, and apparently also in Pollock's statistical investigations,[6] may effect a social cure both in potential schizophrenics and in developed psychoses.

Said our patient: "If something presses on your mind, and you do not get it off, you are bound to get crazy . . . I have been getting it off by drinking. . . ."

REFERENCES

1. Leo I. Hallay: Alcohol and Schizophrenia, *Journal of Medicine*, 18:23-28, March, 1937.
2. Proverbs: Chapter 31, 6-7.
3. Rhasis: Tract. 1, L. 1.
4. Avicenna: 31, Doc. 2, Cap. 8.
5. H. S. Sullivan: *American Journal of Psychiatry*, 11: 533, November, 1931.
6. H. M. Pollock: In Alcohol and Man. Edited by H. Emerson, New York, 1932, pp. 344ff.

CASE OF AGRANULOCYTOSIS FOLLOWING USE OF PYRAMIDON AND NEO-PRONTOSIL.

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This patient, Mrs. A. B., was a white female aged forty-one years, married, the mother of three children, two of whom are living and well at the ages of seven and eleven years, and one who died at two years of age with a diagnosis of enteritis.

Past medical history reveals the patient to have had the usual childhood diseases with no complications. There is also a history of broncho-pneumonia in 1932 with an uneventful recovery.

Aside from the above illnesses, this patient enjoyed excellent health until November, 1935, when she developed a streptococcic infection of the throat with a subsequent cervical adenitis of the left side which was treated by incision and drainage. A second

gland became fluctuant and was treated in a like manner with resultant recovery.

In 1937 the patient developed a recurrent streptococcal infection of the throat, diagnosis confirmed by culture, from which she recovered uneventfully. However, following this episode, a secondary anemia was found with the hemoglobin reaching 45 per cent. This was relieved by iron and liver extract.

On the morning of August 21, I was called to see this patient at her home. Inspection at this time revealed the patient to be moribund, pulse rate 126, temperature 103.8 (axillary), and blood pressure 100/60. At this time a history was obtained that the patient had been having menopausal symptoms for the past nine months. The last menstrual period had been in February, 1939. However, ten days previous to the onset of the present illness, the patient noted profuse vaginal bleeding, associated with cramps over the hypogastric region. These persisted until death. For the relief of these uterine cramps, the patient had been taking capsules containing pyramidon and codeine sulphate at regular intervals throughout the day.

On the 17th of August, the patient was taken with a severe chill, fever, and inflammation of the throat. A clinical diagnosis of streptococcic infection of the throat was made, and extensive intravenous neo-prontosil therapy was instituted.

Four days later, examination of the throat revealed marked injection and ulceration about the gums and buccal surfaces of the mouth. The patient was immediately removed to the hospital, and a blood study at this time revealed a hemoglobin of 70 per cent, red count of 3,400,000, and a white cell count of 200. Examination of the blood smear revealed a total absence of neutrophiles, and the entire slide contained merely two lymphocytes. The blood study was repeated and an identical picture found. The urine examination was negative.

The patient was immediately taken off all previous medication, transfused, placed in an oxygen tent, and intramuscular injections with pentnucleotides begun. Twelve hours after admission to the hospital she passed into a comatose state and died.

In reviewing this case, it may be seen that this patient developed agranulocytosis following the use of the capsules containing pyramidon and codeine sulphate for the relief of her uterine symptoms. She later developed the typical ulcerative lesions of the mouth for which neo-prontosil therapy was instituted. From the final diagnosis, it may be seen that this, no doubt, caused further destruction of the granulocytes. A hematological study early in this case would have led to the diagnosis of agranulocytosis for which pentnucleotide therapy may have offered a chance for recovery. It may further be emphasized, in conclusion, that hematological studies should be done in all cases revealing any ulcerations of the mucous membranes before *any* type of therapy is instituted.

Lewis Gale Hospital.

OCCURRENCE OF MULTIPLE CASES OF INFANTILE PARALYSIS IN ONE FAMILY.

RODERIC O. JONES, M.D., D.N.B., C.P.H.,
Burnsville, North Carolina.

Acute anterior poliomyelitis occurred in epidemic form in Avery County, N. C., during July and August of 1939. A total of thirteen cases were reported in a population of 11,078. During this epidemic three of the reported cases occurred in one family, and a first cousin—living within two hundred yards of this family, and who was in constant contact with the children—developed the disease.

Due to religious prejudice of the parents towards physicians the cases were not seen until very late in the course of the illness, and spinal fluid examinations were not made because the time interval nullified any diagnostic results that might have been obtained. Without adequate clinical observation during the illness of each patient the case histories are necessarily of little value, but the diagnosis in each case is regarded personally as being quite accurate due to the presence of the epidemic in the County, and also to the fact that the two children that developed a definite paralysis were seen in the orthopedic clinic held in the county by a recognized specialist and diagnosed from their paralysis as cases of infantile paralysis.

Of the four cases three occurred in one family, a

brother and two sisters all under the age of six years. The older sister, age four, developed a definite bilateral paralysis of the quadriceps of both legs, the calf muscles, and the anterior tibials. She is now in an orthopedic hospital receiving supportive treatment. Her brother and sister both became ill at the same time, with almost the same symptoms, that is: headache, fever, anorexia, nausea, constipation, and a stiffness of the neck of one day's duration. Both were well in four days' time. These two cases were reported as abortive attacks of infantile paralysis. The cousin had the same prodromal symptoms at the same time of the others, and developed a weakness of the right biceps, and the right quadriceps muscles, but this almost completely disappeared after three months.

Meager as this information might be, it nevertheless seems worthwhile to bring out the possibility that, during epidemics, poliomyelitis may attack as many as three children in one family, along with others of close blood relationship who are in close contact.

A REPORT OF THE STILL-BIRTH OF MALE CONJOINED TWINS, GESTATION EIGHT AND ONE-HALF MONTHS, WITH EPIGASTRIC ATTACHMENT EXTENDING FROM THE THIRD RIB TO THE UMBILICUS.

H. C. PADGETT, M.D.,
Roanoke, Virginia.

The mother, age thirty, was five feet in height and weighed ninety-two pounds at the third month of pregnancy, the weight increasing to 112 pounds on day of delivery, July 15, 1938. She has a normal child, a girl, seven years of age. There have been no twins on the father's or mother's side.

Her symptoms were those of the normal pregnant woman except for an unusual feeling of fullness at the end of the sternum.

Several examinations were made externally and bimanually, but no distinct fetal heart sounds were heard, and diagnosis of twins was not made until after rupture of the membranes.

After the membranes ruptured a right foot presented, this being followed by the cord. The cord was replaced and another foot pulled down. This was a left foot, but with the toes pointing in the opposite direction. This was the first evidence of the presence of twins, but there was no evidence of their being other than normal twin babies.

After considerable manipulation another foot was located, this proving to be the left foot of the first baby, and it was during this endeavor to bring them in position for delivery that the body-mass was located showing presence of an abnormality of structure.

The buttocks of the first child were now delivered by traction on both legs, following which the left foot of the second baby was brought down. The last leg was wedged between the two heads, and the femur was broken in dislodging and bringing it to position.

The bodies were now delivered, the shoulders of the first being pulled through. Placing the right hand over the forehead of this baby, the head was rotated backwards until extricated.

The other head was then easily delivered. There were no other injuries to the babies with the exception of a slight tear in the axilla of the first delivered.

The time of delivery was twenty-six minutes from rupture of the membranes, there being no lacerations.

The twins weighed eight and one-half pounds—one a male, the other having no definite genital formation macroscopically, but a microscopic examination of tissue proved that it also was a male. There were no signs of anus or urethra in this baby. The other, however, had normal outlets to intestines and kidneys. There was only one cord and placenta.

The delivery was at home, having only the husband and sister-in-law as assistants.

Thymopytsin was used to relax the perineum, and chloroform was the anesthetic of choice.

Permission for an autopsy was not granted.

Pythian Building.

CASE OF TULAREMIA TREATED BY SULFANILAMIDE.

HENRY G. HADLEY, M.D.,
Washington, D. C.

Mrs. K. M., a white female, aged twenty-nine, came to the office on November 28, 1938, with a shallow ulcer of the right index finger with a greyish slough. The epitrochlear and axillary glands were considerably enlarged. The history was that of an injury of the finger occurring two weeks before while dressing a rabbit that a friend had shot. The onset of the illness, on the fourth day after the injury, was sudden with a chill and fever and confinement in bed for one week. This the patient considered to be influenza and she was given treatment for the same by an obstetrician friend of the family.

On December 1, the the serum gave a positive test for tularemia, one in twenty-seven dilution. Sulfanilamide was given, thirty grains daily for one week, December 4 to 8, and was discontinued temporarily because of a general eruption. The patient herself requested further sulfanilamide treatment. This was started again as soon as the rash had disappeared. December 22 to January 4 she again received thirty grains daily and the glands had almost entirely disappeared on the last date when the finger lesion had entirely healed.

During both periods of administration of the sulfanilamide, improvement was noted subjectively and objectively. During the period it was discontinued the condition remained relatively stationary.

CONCLUSION

A clinical improvement was noted by administration of sulfanilamide in a case of tularemia.

1252 Sixth Street, S. W.

Miscellaneous

"Blood Bank" First in State, Now in Use at Homeland Hospital.

"Blood Bank," first in Virginia and one of the first in the United States, is now in use at Homeland Hospital in Marion.

By a new process, developed last year by Dr. Charles Elliott of Salisbury, N. C., human blood is kept indefinitely for transfusion purposes, ready for any emergency.

Until the Elliott process was developed, transfusions had to be made directly from blood donor to patient or, by use of a sterile flask, a period of perhaps five minutes might elapse between withdrawal and insertion of blood. In all cases a donor with the right type of blood—and there are four separate types—had to be present before a transfusion treatment could be given. Sometimes, as in the case of the rare No. 2 type blood it took a considerable time to locate a donor.

All that is done away with by the Elliott process. Transfusions can be given anywhere, and at any time.

In the new process, blood is withdrawn from a healthy donor into a sterile vacuum flask known as a vocuoliter. The withdrawal is done through a tube and needle thrust through rubber capped sealed top of the flask and no air comes in contact with the blood. This blood, known as whole blood, can be kept for four days, ready for use, when stored in a temperature of about 65 degrees F.

If the blood is not used within four days, at the end of that period it is withdrawn from the vacuoliter into a sterile bottle. It can no longer be stored as red blood cells will break down.

XUM

The sterile bottle of blood is placed in a highspeed electrically driven centrifuge and revolved at 6,500 revolutions per minute for a period of thirty minutes. Centrifical force throws the red blood cells to the bottom of the bottle, leaving a liquid, known as plasma.

Plasma, a straw colored liquid, contains all the elements of blood except the red cells. It is equally effective in blood transfusions, containing, as it does, all the blood protein elements.

Plasma, siphoned off into another vacuum sealed vacuoliter, may be stored at room temperature and kept indefinitely, ready for any emergency demanding blood replacement.

"It will mean a tremendous lot to first aid stations along highways, and in war surgery," Dr. J. Stuart Staley of Homeland Hospital points out. At the present time Dr. Elliott is in England, giving his process to the British army medical corps for use on the battle fields of France.

The banking angle in the storage of blood comes in this way:

In all cases in which blood is given, some member of the patient's family is asked to donate a corresponding amount of blood to the hospital supply. As each donation equals the amount withdrawn, a constant supply of blood is maintained in the "bank."

The "blood bank" technique at Homeland Hospital has been developed by Dr. Clara King Dickinson, staff technician. So far as is known, she is the first woman in America to master the process and successfully apply it. She got her instruction in the process from Dr. Elliott himself at his Salisburg laboratory.

—The Marion *"Democrat"*.

Survey of Nursing Facilities for Pneumonia in Virginia.

At the request of the Medical Society of Virginia, a Committee on Pneumonia Control was appointed by the Graduate Nurses' Association in Virginia to assist in the campaign against pneumonia in cooperation with Dr. Wyndham Blanton, chairman of the Pneumonia Control Commission of the Medical Society.

As part of the work of this committee, in May, 1939, under the chairmanship of Miss Katherine Gary, a questionnaire regarding the facilities available for pneumonia patients in the indigent and the low income groups during the year 1938 was sent to 135 public health nurses throughout the State.

Ninety-six of these questionnaires were not heard from at all; twenty-three were returned with such comments as "away at school", "ill during winter", "tuberculosis nurse", "school nurse", or "not giving bedside care,"; the remaining sixteen were returned with the information requested.

The compiled results of these sixteen questionnaires showed that in these services there were a total of:

1. 399 patients with pneumonia under observation.
   - 241 were children.
   - 88 were adults.
     - 36 men
     - 52 women
   - 70 no information.
2. 263 lived in urban communities.
   - 79 lived in rural areas.
   - 57 no information.
3. 25 were financially able to provide nursing care.
4. 3 were under full-time care of graduate nurse.
   - 12 were under care of a graduate nurse during night.
   - 7 were under full-time care of practical nurse.
   - 1 was under care of practical nurse at night only.
   - 315 were cared for by the family.
   - 61 no information.
5. 11 nurses reported graduate private duty nurses were available.
   - 5 no information.
6. 29 patients received pneumonia serum.
   - 40 patients were financially unable to provide serum.
   - 330 no information.
7. 9 nurses reported they had sufficient time to do adequate health teaching in the homes.
   - 4 did not have time.
   - 3 no answer.
   - 9 nurses were called upon to give nursing care.
   - 4 were not called upon to give nursing care.
   - 3 no answer.

The following suggestions were made as to how the indigent pneumonia patient might receive adequate nursing care:

1. Hospitalization of patients.
2. Typing stations established throughout the State.
3. State to make appropriation sufficient for serum at lower cost than now sold, and free for the indigent.
4. Hospital insurance in the county for families who are able to support it.

5. Appeal to nurses to volunteer services during crises, or one or two days during serum reaction free. If on a case they should be excused.

6. Patients to be cared for by city physician from health department.

7. Have county physicians report all pneumonia cases to the public health nurse.

8. Education of the family and of the public regarding the value of modern treatment and nursing care of the pneumonia patient.

Comment: One agency suggested that such a questionnaire should be sent out in advance of the period which the study covers rather than at the close of the period, since records are not set up to cover the information requested, and time and personnel are not available to go over the records for the year, select all cases diagnosed pneumonia, draw them from the files, study them and compile the results.

C. E. HAHN, *Chairman.*

Addenda to Minutes of Society.

At the annual meeting of the Medical Society of Virginia in Richmond, last October, Dr. Robertson, president, authorized the sending of a cable, which we publish with acknowledgement:

RICHMOND, VA.
OCTOBER 4, 1939.

MISS ANNA FREUD,
20, MARESFIELD GARDENS,
LONDON, N.W. 3, ENGLAND.

The Medical Society of Virginia in annual session expresses its appreciation of the life of Dr. Sigmund Freud in his unceasing devotion to attempt to give meaning and majesty to human behavior and we beg to proffer you our condolences in death of your distinguished and heroic father.

ALEX. F. ROBERTSON, JR.,
President.

LONDON, N.W. 3.
NOVEMBER 9, 1939.

THE MEDICAL SOCIETY OF VIRGINIA,
RICHMOND, VIRGINIA.

MY DEAR DR. ROBERTSON:

I thank you very warmly for your cable that expressed your Society's condolences at the occasion of my father's death. I am glad to know that your Society also thought so highly of him.

Gratefully yours,
ANNE FREUD.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for December, 1939, compared with the same month in 1938, follows:

	1939	*1938*
Typhoid and Paratyphoid Fever	23	13
Diphtheria	178	218
Scarlet Fever	230	194
Measles	84	173
Meningitis	1	9
Poliomyelitis	3	3
Rocky Mountain Spotted Fever	3	2
Typhus Fever	0	2
Undulant Fever	1	4
Tularaemia	17	73

INFANT MORTALITY

Mortality in the first year of life has been considerably reduced in Virginia during the past fifteen years. In the age group from the second to the twelfth month the reduction has been marked. This record is comparable to that of the United States at large. On the other hand, deaths in the first month of life have been influenced but slightly.

Problems concerning the critical first month now are receiving careful, as well as intensive, study in Virginia in the hope that an appreciable reduction of neonatal mortality may be achieved.

In 1938, of every thousand babies born alive, sixty-six did not reach their first birthday. Slightly more than one-half of those dying during the first year of life succumbed during the first month, representing a rate of 36.2 per thousand live births.

An analysis of the causes of death of infants under one year of age shows that 53 per cent are due to prenatal and natal factors. Premature birth, birth injury, congenital malformations, and syphilis are prominent causal factors. Of these, prematurity is responsible for many of these fatalities, the more frequent complications observed being toxemia, placenta previa, syphilis, and other conditions of the mother.

The need for close medical supervision of the mother during the prenatal period, adequate care at delivery, and a reasonable opportunity for physicians to render essential services both to mother and baby during the neonatal and postpartum periods is evident.

A fair proportion of the major difficulties ex-

perienced in attempting to reduce infant deaths arises from the lack of a widespread application of available knowledge by the laity rather than from a lack of scientific measures and professional skill.

To impress this fact upon the general public in such a way that physicians will more readily be given opportunity to apply their knowledge, is a challenge both to the medical profession and public health officials. Upon the success of their efforts largely depends future progress in the reduction not only of deaths during the first month of life, but of infant mortality as a whole.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HENRY A. LATANE, Alexandria.
President-Elect—MRS. GRIFFIN HOLLAND, Eastville.
Recording Secretary—MRS. T. N. HUNNICUTT, Newport News.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Parliamentarian—MRS. JOSEPH BEAR, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

The Petersburg Medical Auxiliary

Was entertained at its November meeting in the home of Mrs. Meade Edmunds. There was an unusually large attendance, including two new members. Mrs. W. B. McIlwaine, the newly elected President, presided for the first time, and plans for the year's work, with special emphasis on the annual hospital linen shower and the rummage sale, were discussed. Technical papers were read by Mrs. Munford Yates and Mrs. George Reese, after which tea was served by the hostess.

MARTHA A. WRIGHT,
(MRS. FLETCHER J. WRIGHT, JR.)
Publicity Chairman.

The Auxiliary to the Mid-Tidewater Medical Society

Met in October at the home of Mrs. E. L. W. Ferry of Miller's Tavern. The program for the coming year was planned with each committee chairman in charge of a program: Health and *Hygeia*—Mrs. Cox and Mrs. Harris; Public Relations—Mrs. Gwathmey and Mrs. Smith; Doctors' Day Program—Mrs. Pearson and Mrs. Campbell.

The annual election of officers was held and the following named: President, Mrs. Hawes Campbell; vice-presidents, Mrs. Horace Hoskins, and Mrs Warner Lewis; secretary-treasurer, Mrs. Malcolr Harris; historian, Mrs. Horace Hoskins; progr and *Hygeia* chairman, Mrs. Seldon Cox; Publicit Mrs. Warner Lewis; and Membership, Mrs. R. D Bates.

ELIZABETH S. HARRIS,
(MRS. MALCOLM HARRIS)
Secretary.

Norfolk Auxiliary.

The Auxiliary to the Norfolk County Medical Society has made plans for a card party and fashion show on January 24, at the Town Club. Many attractive door prizes will be given and several debutantes will model the new spring fashions. The Auxiliary has a party each year to raise money to maintain a patient in the Tidewater Memorial Hospital and to contribute to other charities as well. Mrs. H. W. Rogers is president.

EUGENIA H. JONES,
Publicity Chairman.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Abbott Laboratories
- **Sterile Solution Thiamin Chloride—Abbott, 250 mg., 5 cc. Bottle.**
- **Sterile Isotonic Solution Thiamin Chloride—Abbott, 100 mg., 10 cc. Bottle.**
- **Tablets Thiamin Chloride—Abbott, 6 mg.**

Eli Lilly and Company
- **Combined Diphtheria Toxoid—Tetanus Toxoid, Alum Precipitated, two 1 cc. vials package.**
- **Combined Diphtheria Toxoid—Tetanus Toxoid, Alum Precipitated, one 10 cc., vial package.**
- **Sobisminol Mass—Lilly**
- **Pulvules Sobisminol Mass—Lilly**
- **Sobisminol Solution—Lilly**
- **Sobisminol Solution—Lilly, Ampoules 1 cc.**
- **Sobisminol Solution—Lilly, Ampoules 2 cc.**
- **Sobisminol Solution—Lilly, Ampoules 50 cc.**

E. R. Squibb & Sons
- **Sobisminol Mass—Squibb**
- **Sobisminol Mass—Squibb Capsules**
- **Sobisminol Solution—Squibb**
- **Sobisminol Solution—Squibb, Ampoules 1 cc.**
- **Sobisminol Solution—Squibb, Ampoules 2 cc.**
- **Sobisminol Solution—Squibb, Ampoules 50 cc.**
- **Epinephrine in Oil—Squibb.**

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Luminal-Sodium Tablets, 1 grain.—Each tablet contains luminal sodium (New and Nonofficial Remedies, 1939, p. 126) 1 grain. Winthrop Chemical Co., Inc., New York.

Sobisminol Mass.—A complex organic bismuth product the chemical nature of which has not been fully established. It is obtained by the interaction of sodium bismuthate, *tri*isopropanolamine and propylene glycol. It contains between 19.25 and 20.25 per cent of bismuth. Sobisminol mass is proposed in the oral treatment of syphilis. It is particularly indicated for those patients unable to undergo intramuscular bismuth therapy and to supplant therapy by that route for patients compelled for a time to be out of contact with their physician. Again it may be indicated in certain other types of syphilis, e. g., congenital and latent syphilis. It is too dangerous a drug to be employed by the patient without the careful supervision and direction of his physician, and it is sold only on prescription. In the first few days of therapy the patient should be carefully supervised and later watched for evidence of gastrointestinal upsets and of bismuth intoxication.

Sobisminol Mass—Lilly.—A brand of sobisminol mass—N.N.R. It is supplied in the form of capsules. Each capsule contains 0.75 Gm. of sobisminol mass representing 150 mg. of bismuth as an organic bismuth compound. Eli Lilly and Company, Indianapolis, Ind.

Sobisminol Mass—Squibb.—A brand of sobisminol mass—N.N.R. It is supplied in the form of capsules. Each capsule contains 0.75 Gm. of sobisminol mass representing 150 mg. of bismuth as an organic bismuth compound. E. R. Squibb & Sons, New York.

Sobisminol Solution.—A solution containing a complex organic bismuth product the chemical nature of which has not been fully established. It is obtained by dissolving the products of the interaction of sodium bismuthate, *tri*isopropanolamine and propylene glycol in a mixture of propylene glycol and water. Each cubic centimeter of the solution contains between 19.5 and 20.5 mg. of bismuth and 0.5 cc. of propylene glycol. Sobisminol solution is proposed in the treatment of all types of syphilis and is claimed to be free from unusual discomfort when used by the intramuscular injection route.

Sobisminol Solution—Lilly.—A brand of sobisminol solution—N.N.R. It is supplied in 1 cc., 2 cc. and 50 cc. ampoules. Eli Lilly and Company, Indianapolis, Ind.

Ferrous Sulfate, Desiccated.—Exsiccated Ferrous Sulfate.—Dried Ferrous Sulfate.—"Exsiccated Ferrous Sulfate contains the equivalent of not less than 80 per cent of anhydrous ferrous sulfate [$FeSO_4$]."—U.S.P. X. The product is generally administered for the purpose of increasing the hemoglobin of the blood. It was formerly official in the U.S.P. X but was omitted from the U.S.P. XI. Its advantages over the official hydrous preparation are its physical properties (the hydrated material is difficult to capsulate). It is supplied in the form of capsules 0.33 Gm. (5 grains). Lederle Laboratories, Inc., Pearl River, N. Y.

Mead's Mineral Oil with Malt Syrup.—An emulsion of white mineral oil, 50 cc., with acacia and gum tragacanth, dispersed in malt syrup. The percentage by weight composition of the emulsion is as follows: Malt syrup (78 per cent solid) 54 per cent, mineral oil 38 per cent, water 5.5 per cent, alcohol 1.4 per cent, acacia 1 per cent and gum tragacanth 0.1 per cent. Mead Johnson & Company, Evansville, Ind. (*J. A. M. A.*, December 23, 1939, p. 2320.)

Propaganda for Reform

Oral Bismuth Therapy in Syphilis.—Now, for the first time, appears a metallic preparation which seems to be useful when administered orally for the treatment of syphilis. This form of therapy is certainly not advisable except for intelligent, cooperative patients. It is essential that the patient take the medication regularly, as directed by the physician, or that the physician insist on the intramuscular route for therapy for uncooperative patients. There are, of course, certain instances in which the oral route of medication would be a valuable adjunct in syphilis therapy. It can be used with caution for those individuals whose business or profession necessitates occasional absences from the physician's supervision. It should prove useful for those rare persons who have unusual difficulty in taking intramuscular injections because of resultant pain and induration of the muscles. It is also possible that in selected cases of congenital syphilis and in some cases of cardiovascular and latent syphilis the oral route of medication would be distinctly useful. In the course of experiments on the utilization of sodium bismuthate in antisyphilitic therapy, Hanzlik, at Stanford University, evolved preparations resulting from the interaction of sodium bismuthate, tri-isopropanolamine and propylene glycol, known as sobisminol mass and sobisminol solution. These products have been before the Council on Pharmacy and Chemistry for approximately three years, a period which was necessary for the accumulation and proper evaluation of evidence for the efficacy of the orally administered product. These products, as well as various marketed brands, have now been accepted by the Council. According to agreements between the board of trustees of Stanford University and each of the three firms already licensed to manufacture the product, every legal effort is being made to prevent the sale of capsules of sobisminol mass to the public other than on or by the prescription of the physician. Distribution of such a product to the public would obviously result in inadequate treatment of unrecorded and uncontrolled cases and thus would become a serious menace both to the individual and to the public health. Lastly it is pointed out that oral administration of bismuth compounds is not intended to replace the generally accepted use of bismuth preparations intramuscularly, except where special conditions prevail. (*J. A. M. A.*, December 16, 1939, p. 2240.)

XUM

Book Announcements

Treatment by Diet. By CLIFFORD J. BARBORKA, B.S., M.S., M.D., D.Sc., F.A.C.P., Department of Medicine, Northwestern University Medical School, Chicago; Formerly Consulting Physician, Mayo Clinic. Fourth Edition, Revised. J. B. Lippincott Company. Philadelphia. 1939. Octavo of 642 pages. Illustrated. Cloth. Price, $5.00.

This diet reference volume has been brought up to date in the changing world of dietetics. In the vanguard of progress are the vitamins. The author has well summarized present knowledge including theoretical daily requirements given by many different authorities.

His arrangement of the diet lists throughout make for easy understanding and practicability even for the lay reader. In each diet list not only are the classes of foods and a 24-hour list given, but a sample menu for all three meals, with household measure and weight in grams in such arrangement that no mistake can be made in following it. Photographs of portions, that indescribable measure of all diet lists, help to give that term true definition.

The author adheres to the wid-western practice of using relatively high fat content of diets for diabetics for which he has listed some 29 diets. A particularly helpful list is one compiled for diabetes complicated by peptic ulcer. The obesity diets are well constructed and simple.

The section on nephritis is scientifically well planned but practically it appears too unnecessarily complicated. Sixty-six pages are devoted to this disease, 14 pages are devoted to diet in pernicious anemia, 11 pages to diet in secondary anemia both of which seem superfluous in light of potent liver and iron therapy.

The appendix contains useful recipes and food tables.

In summary, we may say that this book is a valuable diet reference for the hospital and general practitioner. Although slightly pedantic in parts, on the whole it is useful and practical.

JOHN P. LYNCH, M.D.

Obstetrical Practice. By ALFRED C. BECK, M.D., Professor of Obstetrics and Gynecology, Long Island College of Medicine; Obstetrician and Gynecologist-in-Chief, Long Island College Hospital, Brooklyn. Second Edition. Baltimore. The Williams and Wilkins Company. 1939. Octavo of xii-858 pages. More than One Thousand Illustrations. Cloth. Price, $7.00.

This textbook of obstetrics, which is already being used by a number of medical schools in this country, seems to be a most excellent one, especially for the medical student and intern. It is also excellent for the general practitioner and obstetrician both as a textbook and as a reference book.

The style is excellent. The entire book is written in more or less of an outline form, as concise as possible, yet complete and unmistakable. Throughout the entire book the more important statements are in heavier type. One does not find page after page of unnecessary and uninteresting discussions frequently seen in some of the more widely used textbooks.

At the same time, the volume is a veritable atlas of obstetrical practice. 1,100 drawings illuminate the subject beyond all possibility of misunderstanding. A series of illustrations eliminates lengthy discussions. The illustrations on version, breech extraction, management of occiput posterior positions, on forcep application and deliveries, perineorrhaphies, and the technique of many other operative procedures, along with a brief description of the technique, including proper suture material, etc., makes the book well worth while for the student and intern.

Nearly all of the information and discussion of the various problems seem in keeping with the generally accepted views. The entire book seems well up to date and very complete. W. C. WINN.

Cancer Handbook. Of The Tumor Clinic Stanford University School of Medicine. Edited by ERIC LILJENCRANTZ, M.D., Chief of Tumor Clinic, Stanford University School of Medicine; Consultant in Neoplastic Disease, U. S. Naval Hospital, Mare Island and U.S. Marine Hospital, San Francisco. Stanford University Press. California. 1939. Octavo of 114 pages. Illustrated. Cloth. Price, $3.00.

The handbook opens with a concise statement of the cancer problems (Chapter 1), briefly emphasizing the important facts concerning ever-increasing incidents, the more common types of this group of diseases, the intrinsic and extrinsic etiological factors in carciogenesis, the general methods of the spread of cancer, disposition of metastases and a short discussion of the differential diagnosis of cancer, clinical and by biopsy. Chapter 2 is a short but very clear and well written discourse on the principles of radiation therapy including tables on relative sensitivity of tumors, the effects of different qualities of radiation and a short explanation of the probable mechanism of the effects of radiation on tissue cells so far as our knowledge goes at the present time. The re-

mainder of the chapters (3 to 12 inclusive) deal with various types of cancer classification by anatomical location: cancer of the lip, eye, and skin; cancer of the oropharynx; cancer of the gastro-intestinal tract; gynecological cancer; genito-urinary cancer; leukemias and lymphoblastomas of the central nervous system; and bone tumors. The bibliography refers the reader to many widely accepted and authoritative books and articles by leading scientists and practitioners in the field of cancer. This bibliography is by no means exhaustive, listing only 115 contributions but these have been very carefully selected and are to be recommended for further reading and reference in conjunction with use of this handbook.

A few debatable opinions are stated but usually as opinions of the author. For instance, on page 18 there is stated that "practically the radioresistance of a living structure is limited pretty closely to the radioresistance of its circulation." Mucoid carcinoma of the intestine is listed as a radiosensitive tumor. Lymphocytes are stated to be the most radiosensitive of all cells. Again, it is stated that the use of radiation is not likely to improve the results obtained by complete competent surgery in the group of stage I carcinomas of the breast. Such facts, of course, are matters of opinion and probably should not be flatly stated to the student or practicing physician who is not particularly trained in this field.

On the other hand, the author emphasizes many important and not very widely known facts and fundamental principles concerning these diseases such as emphasizing on the patient's general comfort, on minimizing pain in biopsy and therapeutic procedures, on the treatment of post-irradiation nausea, as well as urging caution in such significant and probably far-reaching procedures as palpation of metastatic nodules and primary lesions. He decries delay in instituting therapy in any case and continually reiterates the importance of early diagnosis and immediate radical treatment by whatever accepted method that is chosen. Each chapter is well organized and in general shows a definite system, starting with short incidents, continuing with the differential clinical diagnosis and characteristics, the clinical classification by stages which are well defined in each instance and this is followed by a statement of accepted methods of treatment for each stage of the disease, occasionally briefly stating the results in their own tumor clinic on a long series of cases. Each chapter ends with a note on the factors to be considered in prognosis.

Without reservation this handbook can be highly recommended to every physician and certainly should be familiar to every senior medical student and interne.

G. Z. W.

Asthma. By FRANK COKE, F.R.C.S. With the Collaboration of HARRY COKE, M.R.C.S., L.R.C.P. Honorary Physician, Charterhouse Rheumatism Clinic. Second Edition, Fully Revised, and Illustrated. The Williams and Wilkins Company. Baltimore. 1939. Octavo of xii-266 pages. Cloth. Price, $4.00.

This is the second edition of a small book on asthma first published sixteen years ago. It is an English book and the American reader is quick to sense theories and methods foreign to his own. There are two noticeable points of emphasis in this edition. Unusual prominence is given to aspirin sensitivity. It is said that more than 2 per cent of asthmatic patients fall into such a group. Definite clinical characteristics are claimed for those exhibiting this type of allergy, and a specific therapy is recommended. The author devotes a considerable number of pages to "the general technique and biochemical rationale of the so-called differential sedimentation test." In fact he organizes his book on the basis of three types of asthma said to be disclosed by this test. The book is hardly large enough to serve as a clinical handbook. It might serve some useful purpose in medical teaching.

W. B. B.

The Vitamins. A Symposium Arranged Under the Auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association. Imitation leather. Price, $1.50 postpaid. pp. 637. Chicago: American Medical Association, 1939.

So much information has become available about the vitamins, that it is difficult even for experts to keep up with the literature. The present volume is a welcome compendium of authoritative information about these accessory food factors. There are discussions of the chemistry, physiology, pathology, pharmacology and therapeutics, methods of assay, food sources and human requirements of each of the important vitamins. The volume is composed of thirty-one chapters written by experts, and is published under the auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association.

This book should prove to be an indispensable volume for the library of every physician.

XUM

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Editorial

1820-1940.

On December 15, 1820, a group of doctors from Manchester and Richmond organized the Medical Society of Virginia. In January of the next year James McClurg was elected its first president. On January 2, 1824, the Medical Society of Virginia was chartered. Soon afterwards for reasons now unknown it ceased to function. On December 27, 1841, the Society was revived at a meeting held in the offices of Dr. Thomas Nelson of Richmond. Thereafter an increasing number of physicians from the State at large identified themselves with the Society. Between 1851 and 1853 the records disclose among the members Drs. Houston of Wheeling, Shelton of Powhatan, Archer of Henrico, Powell of Middleboro, Tatum of Chesterfield, Wellford of Fredericksburg, Atkinson of Danville and Worsham of Dinwiddie. In 1852 many county medical societies were organized and the same year sent delegates to a State medical convention at which Dr. Beverley R. Wellford of Fredericksburg was elected president. In 1859 the Society again lapsed into silence and inaction to be finally revived in 1870. It is the time of this last reorganization that until now has been regarded as the date of the founding of the Society. The Council at a recent meeting, after reviewing all the facts, decided that the original birthday, December 15, 1820, and not the 1870 reorganization, was the proper time from which to claim existence, and directed that the seal and stationery of the Society be changed to accord with its action.

In the Balance.

The institutional care of the insane in America began in Virginia. We are proud of that.

Ten thousand mental patients are now housed in our various State operated hospitals. How well they are fed, domiciled, diagnosed and treated was the subject of a recent investigation by the Mental Hospital Survey Committee. It was discovered that in Virginia approximately $150.00 will pay for all that the State does for a mental patient in the course of twelve months; that in some of the hospitals the ratio of patients to doctors was such that it was possible to examine each patient only once a year, and that the ratio of patients to nurses and orderlies was also bad; that in the winter many buildings were too cold for comfort; that some buildings were fire risks and that most were in a poor state of repair; that insane persons were still lodged in jails, and that preventive psychiatry was as yet unborn in this State. We are *not* proud of that.

For a few years a group of gubernatorial appointees—the State Hospital Board—has been in existence. It has two weaknesses: (1) It is political (appointment and dismissal are at the pleasure of the Governor); (2) Its membership is deficient in representatives of the medical profession (as now

constituted only two of the seven members are physicians). And yet this Board has done much since it was created to improve the condition of the mental wards of the State. To its credit are the appointment of several excellent superintendents and clinical directors; the institution of psychiatric clinics; the closing of buildings that were fire risks; the establishment of a nursing school; as well as the inauguration of many other innovations which with time and reasonable continuity of action promise vast improvement in the situation in the hospitals for the mentally sick in the State.

Just as this Board is getting up steam, a disturbing rumor suggests that there is a movement on foot to abolish it and to combine the activities of Public Welfare, of a new Department of Correction, and of Mental Health under a single agency to be known as The Welfare Council. This disquieting news led the VIRGINIA MEDICAL MONTHLY to poll the membership of the Neuropsychiatric Association of the State for an expression of approval or disapproval. The striking unanimity of the replies to this questionnaire indicates unfaltering opposition on the part of a group of experts in mental disease to the dissolution of the present Board. At its recent meeting the Council of the Medical Society of Virginia took a similar stand and vigorously protested the dismissal of a body of men whose good works have hardly begun.

In Virginia the Governor has the power of life and death. He can grant a reprieve or annul a death sentence. Subject to his power is the State Hospital Board. A death sentence hangs over it. A reprieve has been granted. The question is, will the Governor eventually send the Board to the electric chair?

Nineteen Thirty Nine.

The end of another twelve months inspired Morris Fishbein to balance the account of medicine for the last year. In the column of assets he has placed ten worthwhile advances. (1) Sulfanilamide (with its derivatives sulfapyridine and sulfamethylthiazol) is listed as the "drug of the year," being presumably useful in thirty-three diseases; (2) vitamin B_1, the "vitamin of the year," synthetically available, with indications in tics, habit spasms, facial neuralgia and other nerve disorders, has been so effective that it suggests a wider prevalence of deficiency in this vitamin in this country than has been hitherto realized; (3) sex hormone therapy has advanced a step in the recognition of the usefulness of testosterone in so-called male climacteric disorders, and in the extention of the use of estrogen to leukoplakia of the tongue; (4) Sobisminol, a bismuth compound, is a new and potent antisyphilic drug for oral administration in conjunction with intravenous arsenicals; (5) vitamin K, synthetically available, by stimulating the production of prothrombin, has found a place in the treatment of hemorrhage; (6) "frozen sleep" while not curing cancer, has appeared to arrest its growth temporarily and given some symptomatic relief; it opens the way to a new biological approach to the problem of neoplasm in general and perhaps to other diseases; (7) transfusions of blood may be life saving in the treatment of burns; (8) the epidemiology of influenza may be explained by the discovery that the virus is harbored by swine in latent form between outbreaks; (9) surgical advance has been made in the symptomatic relief of angina pectoris; (10) surgical success in correcting some congenital defects of the heart in new born babies is worthy of record.

Other attempts to list the high lights of medical science during 1939 include among notable discoveries: the galactose test in the diagnosis of goitre (T. L. Althausen); neutron rays as a substitute for X-rays in the treatment of cancer; radioactive sodium phosphate in the treatment of leukemia; and oxalic acid as a competitor with vitamin K in the control of hemorrhage. Perhaps of greater fundamental import is the discovery of Kogl and Erxleben that the amino acids of cancer cells are dextrorotary. It has been long recognized that normal cells can only utilize levorotary amino acids. This peculiarity of neoplastic tissues is of more than passing interest and possibly suggests new avenues of approach to a perennial problem.

The last year of the third decade of the Twentieth Century has helped to make medical history, and a great and unending process goes on.

The Census and Medicine.

The nation that boasts 45 per cent of the wealth of the world with one-half of the automobiles and one-half of the telephones, that produces 60 per cent of the world's oil, 30 per cent of its pig iron and steel, 35 per cent of its wheat, and that has more students in colleges and universities than all of the rest of the nations put together, yet occupies only 6 per cent of the earth's surface and has only one-fifteenth of

its population, is preparing to learn still more about itself. The approaching 1940 Decennial Census promises the "most exhaustive assemblage of facts ever compiled on the population, resources, business and occupational activities of the United States".

For the sixteenth time the statistical record of this country is to be brought up to date. In the vast array of figures which will be assembled none are more important than those which relate to health. It is through the census that the actual progress of medical science is measured. The cold facts are to be found in the vital statistics assembled from this source. It is by such means that we know that 704,600 persons will not die this year of tuberculosis, typhoid, smallpox, scarlet fever, diphtheria, pneumonia, influenza, erysipelas, malaria, bronchitis, diarrhoea, enteritis, cirrhosis of the liver, childbirth, congenital malformation, childhood diseases, or nephritis who would have died from them had not the health conditions of 1900 been improved. By such means we recognize what appears to be the increasing deadliness of cancer, cerebral hemorrhage, heart disease, diabetes, appendicitis, suicide, homicide and automobile accidents. The census figures bear not only on matters of life and death. They afford information of great usefulness on the health of the nation, and the economic and social factors which are affecting it. In the census as nowhere else are reflected such great changes as the slowing up of the growth of population, the reduction of the youth to old age rates, the decrease in the city birth rate to the rural birth ratio, the higher death rate of the cities to the death rate of the rural areas, the fluctuation in the urban to rural population ratio which occurs with fluctuation in prosperity, and the spectacular growth of large cities at the expense of the farms, with attendant health problems.

All intelligent and patriotic citizens should exert themselves in the interest of this most important statistical undertaking, the 16th Decennial Census. Physicians especially should be interested in its success.

Department of Clinical and Medical Education of the Medical Society of Virginia

Postgraduate Clinics at University of Virginia.

The twenty-fifth Postgraduate Clinic of the University of Virginia Medical School will be held on Friday and Saturday, April 5 and 6. The program will deal with various infectious diseases of the South. The tentative program is as follows:

1. THE JAMES CARROLL FLIPPIN MEMORIAL LECTURES.
   a. AMEBIASIS
   b. MALARIA
   } Dr. William James, Panama.
2. TULAREMIA—Dr. Edward Francis, United States Public Health Service.
3. THE RICKETTSIAL DISEASES (ROCKY MOUNTAIN SPOTTED FEVER AND TYPHUS FEVER) —Dr. R. E. Dyer, United States Public Health Service.
4. SYPHILIS—Dr. J. Earl Moore, Baltimore, Maryland.
5. UNDULANT FEVER—Dr. A. V. Hardy, Columbia University College of Physicians and Surgeons.

An attempt will be made to include in the program a discussion of THE VIRUS DISEASES by a staff member of the Rockefeller Foundation.

Discussion of each topic in light of the local experience with the disease will be conducted by doctors from the University Hospital.

A final program will be mailed to each doctor in the State in advance of the clinic. In view of the prominence of the invited guests a large attendance from the State is expected.

Special Courses.

At the request of the local societies, arrangements are now being made to offer postgraduate courses at Alexandria and Newport News during February and March. Among the subjects that may be included in these courses are the following:

The Newer Phases of Pneumonia Treatment.
Hematology.
The Toxemias of Pregnancy.
The Prevention of Abdominal Adhesions With Heparin.

The Management of Head Injuries.
Office Gynecology.
Chest Surgery.

It will be possible to arrange several additional similar courses during the spring and early summer. Component societies wishing such courses arranged within their confines should communicate with this Department.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Accomack County Medical Society

Held its annual meeting on December 15. An interesting and entertaining program was presented, including talks by Drs. John W. Robertson, Rooker J. White, and Harry L. Denoon; a reading, "St. Luke, the Physician" by Mrs. Rooker J. White; violin solos by Dr. William L. Cosby, and vocal solos by Mrs. J. L. DeCormis. Accompanists at the piano were Mrs. DeCormis and Dr. James C. Doughty.

Officers for 1940 were elected as follows: President, Dr. D. L. LeKites, Chincoteague; vice-president, Dr. C. E. Critcher, New Church; and secretary-treasurer, Dr. J. C. Doughty, Onancock.

Arlington County Medical Society.

New officers of this Society for 1940 are: President, Dr. V. J. Dardinski; vice-president, Dr. Wm. B. King; and secretary-treasurer, Dr. Henry L. Bastien (re-elected). All officers are from Arlington.

Lynchburg Academy of Medicine.

The regular meeting of the Academy was held January 8, at 8:00 P. M., in the Elks' Club, with the President, Dr. S. E. Oglesby, presiding. Dr. E. G. Scott, president-elect for 1940, was installed in office. Dr. Powell Dillard is vice-president and Dr. C. E. Keefer was appointed secretary.

Dr. Elizabeth Edmunds was elected to membership.

A very instructive and encouraging report on the "Control of Peritoneal Adhesions with Heparin," was presented by Drs. E. P. Lehman and F. E. Boys from the Surgical Department of the University of Virginia. This experimental study was illutrated by motion pictures.

Mr. F. M. Cullers, representing the Petrolagar Laboratories, Inc. and S.M.A. Corporation, presented a motion picture "Science and Arts of Obstetrics-Eclampsia." This picture required seven years in the making and is the latest produced by Dr. J. B. De Lee. The Petrolagar Laboratories, Inc., favored the membership by a printed program.

C. E. KEEFER, *Secretary.*

The Northampton County Medical Society

Held its regular quarterly meeting on January 8, at which time Dr. C. C. Smith, Norfolk, spoke on "Goiter in Tidewater Virginia". Officers for 1940 are: President, Dr. Joseph E. Gladstone, Exmore; vice-president, Dr. S. K. Ames, Cape Charles; secretary, Dr. W. Carey Henderson (re-elected), Nassawadox; and member of the board of censors for three years, Dr. J. M. Lynch, Cape Charles.

Orange County Medical Society.

At the regular quarterly meeting of this Society, held on January 5, the following officers were elected: President, Dr. J. P. Hankins; vice-president, Dr. O. N. Shelton; and secretary, Dr. G. R. Elliott. The last two were re-elected.

The Patrick-Henry Medical Society

Held its regular quarterly meeting at the Broad Street Hotel, Martinsville, January 5, with the President, Dr. W. C. Akers, presiding. Dr. J. T. Shelburne reported on the Southern Medical Association meeting. Dr. B. A. Hopkins reported three unusual gun shot wounds and Dr. W. N. Thompson read a paper reviewing the subject of hypertension.

R. H. WALKER, *Secretary-Treasurer.*

Richmond Academy of Medicine.

Dr. Frederick D. Weidman, professor of Dermatology at the Graduate School of the Jefferson Medical College, Philadelphia, was the guest speaker before the Academy at its regular meeting on January 23, at which the president, Dr. J. Powell Williams presided. The meeting was followed by the usual buffet supper.

The Section on the History of Medicine of the Academy will have its annual banquet and meeting

on the evening of February 13. Dr. Russell L. Haden, chief of the Medical Section of the Cleveland Clinic, will be the guest speaker on this occasion.

The Roanoke Academy of Medicine

Held its regular meeting on January 8, under the presidency of Dr. L. G. Richards. The scientific program was as follows: Folk Medicine in Our Midst by Dr. Henry Lee; and Treatment of Madura Foot with Sulfanilamide by Dr. Joseph Dixon.

Dr. David B. Stuart is secretary-treasurer of the Academy.

The Williamsburg-James City County Medical Society,

At a recent meeting, elected the following as officers for 1940: President, Dr. T. B. Henderson; vice-president, Dr. C. E. Holderby; and secretary-treasurer, Dr. I. S. Zfass (re-elected). All are of Williamsburg. This Society holds its meetings monthly on the second Friday, except in July and August.

Virginia Peninsula Academy of Medicine.

At the December meeting of the Academy, Dr. E. M. Landis, of the University of Virginia, spoke on "Peripheral Vascular Disease".

The January meeting, held on the 15, was devoted to obstetrics, and the speaker was Dr. Edward A. Schumann, Professor Emeritus of Obstetrics at the University of Pennsylvania, and attending obstetrician at the Kensington Memorial Hospital for Women.

Dr. A. A. Creecy and Dr. E. B. Mewborne, both of Newport News, are president and secretary, respectively, of the Academy. Meetings are held each month between September and May on the third Monday.

News Notes

The Tri-State Medical Association of the Carolinas and Virginia

Will meet in Richmond, February 26 and 27, under the presidency of Dr. A. E. Baker, Charleston, S. C. Headquarters will be the John Marshall Hotel, and Dr. J. K. Hall, Richmond, is local chairman of the Committee on Arrangements. Guest speakers will be Drs. L. F. Woolley, Towson, Md.; A. C. Broders, Mayo Clinic, Rochester, Minn.; Seale Harris, Birmingham; Emil Novak, Baltimore; and Temple Fay, Philadelphia.

Dr. J. M. Northington, Charlotte, N. C., is secretary of the Association, and Dr. C. J. Andrews of Norfolk is president-elect.

Medical College of Virginia News.

The attendance at Founders' Day, January 16, when the restored Egyptian Building was rededicated, exceeded expectations. The various programs were pronounced outstanding.

Dr. James Asa Shield has been elected president of the Richmond chapter of the general alumni association. Other officers are: Dr. G. A. C. Jennings vice-president; Mrs. Annie Franks Mahoney secretary; and Dr. J. A. Reese treasurer.

Sir James Purves-Stewart, internationally famous British neurologist, spoke to the senior class in medicine, and others, on January 13.

Dr. Fred J. Wampler, professor of preventive medicine, attended the meeting of the Council on Industrial Health of the American Medical Association in Chicago recently. Dr. Wampler is chairman of the Industrial Hygiene Committee of the Medical Society of Virginia. He conducted the discussion on the organization of industrial health committees in State medical societies at a round-table meeting of the Chicago Council.

The departments of bacteriology and pathology have been moved to new quarters in the restored Egyptian Building.

Dr. H. L. Osterud, professor of anatomy, has been elected to a three-year term on the Council of the American Association of University Professors.

Dr. Lewis E. Jarrett, director of the hospital division, attended the meeting of the Council on Hospital Service Plans of the American Hospital Association in Chicago on January 14.

Miss Aileen W. Brown, associate professor of

dietetics, has been awarded a fellowship by the General Education Board of New York for a year's work in dietetics at Columbia University.

A gift of $30,000.00 has been received from an anonymous donor for additional equipment for the clinic and laboratory building. The Phelps-Stokes Fund of New York has also made a grant of $100.00 for the Saint Philips school of nursing library. These gifts bring the total for the current fiscal year to $183,522.00.

Dr. Everett I. Evans, assistant in surgery, has been granted a Rockefeller fellowship for special study at the Massachusetts General Hospital for a year, to begin April 1, 1940. He will work under Dr. Edward D. Churchill in thoracic surgery and under Dr. Henry K. Beecher in anaesthesia.

News Notes from Duke University School of Medicine.

On December 16 Mr. Charles C. Thomas, publisher of Springfield, Ill., and Baltimore, Md., held a clinic for the staff and students on Medical Publications.

On the above date the autumn quarter ended, with eighteen seniors completing the medical course, all of whom obtained interneships commencing January 1.

Virginia Doctors Granted Certificates.

Virginia doctors who recently completed the final examinations of the American Board of Surgery and have been awarded certificates are: Drs. Donald S. Daniel, Randolph H. Hoge, Guy W. Horsley, and Benjamin W. Rawles, Jr., of Richmond; and Dr. William H. Parker, University of Virginia.

Dr. N. P. Fitts

Is opening offices at 923 Prospect Avenue, Flint, Michigan, where he will specialize in diagnoses and nervous and mental diseases. He has recently been at Swan Quarter, N. C.

Dr. W. G. Hardy,

Formerly of Stanleytown, is now associated with Dr. M. P. Rucker of Bedford, where he is engaged in general practice.

Married.

Dr. Henry Lee, Roanoke, and Dr. Elizabeth Saunders, Radford, December 26. Dr. Lee graduated from Johns Hopkins University in 1930 and Mrs. Lee is a graduate of the University of Virginia, Department of Medicine in 1932.

Dr. Walter E. Daniel, Charlotte, N. C., and Miss Ada Perry Gibson, daughter of Dr. and Mrs. J. A. Gibson, Leesburg, December 30. Dr. Daniel is a graduate of the Medical College of Virginia in 1931.

Dr. Robley Curtis Allison, of the staff of Central State Hospital at Petersburg, and Miss Grace Elizabeth Johnson, Lenoir, N. C., January 20.

The Richmond Institute for Hospital Employees

Will hold its first series of meetings in the Egyptian Building of the Medical College of Virginia on February 1, 15, and 29, and March 14 and 28, at 8:00 P. M. This is being sponsored by the Richmond Hospital Council with Dr. John Bell Williams as President. The Committee of Arrangements is composed of Mr. O. K. Fike, Miss Charlotte Pfeiffer, and Dr. Lewis E. Jarrett.

While this institute was organized primarily for the purpose of giving all the hospitals of Richmond the opportunity of studying and discussing many of the complex problems of the day, collectively, believing it will be permanently beneficial to every one participating, the staffs of all hospitals of Virginia are extended a cordial invitation to attend this Institute. There will be no expense to any individual or hospital.

Personnel Notes from the State Department of Health

Dr. Thomas F. McGough was appointed Assistant Health Officer of Pulaski County, effective January 1, with headquarters at Pulaski.

Dr. William Parker Terry was appointed Assistant Health Officer of Brunswick-Greensville-Mecklenburg Health District, effective January 1. Headquarters for this District are at Lawrenceville.

Dr. John McIver Jackson was appointed Assistant Health Officer of Fairfax County, effective January 1. He will be located at Fairfax.

Dr. James M. Habel, Jr.,

Class of '35, Medical College of Virginia, has just located in Suffolk, where he is connected with Lakeview Hospital in the department of obstetrics and gynecology.

The American Psychiatric Association,

The oldest national medical association in America, has accepted an invitation to hold its 1941 meeting in Richmond, in the Spring of 1941. The Association, which is close to one hundred years of

age, met in this city in 1900 and again in 1925, and we feel it is a compliment that it has voted to come here next year.

Dr. M. B. Hiden,

Warrenton, is taking a postgraduate course in surgery at the Graduate School of Medicine of Tulane University, New Orleans.

Dr. A. L. Carson, Jr.,

Assistant Director of the Virginia State Bureau of Maternal and Child Health, addressed the Obstetric Section of the Norfolk County Medical Society at its regular meeting on January 22.

Doctors as Officers in Banks.

Names of the following doctors have recently been noted among those of directors of banks in their respective towns in Virginia:

Dr. M. J. Payne, Staunton
Dr. E. L. Hopewell, Strasburg
Dr. H. L. Segar, Warsaw
Dr. H. A. Spitler, Middleburg
Dr. Reid White, Lexington
Dr. Lewis Holladay, Orange
Dr. W. C. Mason, Gordonsville
Dr. E. G. Brumback, Luray
Dr. Roshier W. Miller, Richmond
Dr. Douglas VanderHoof, Richmond
Dr. Herbert C. Jones, Petersburg
Dr. Wm. D. Prince, Jarrett
Dr. W. W. Wilkinson, La Crosse
Dr. W. D. Haden, Charlottesville
Dr. W. M. Phipps, Hopewell

The last three were elected presidents of their boards.

Dr. Frank S. Johns,

Richmond, has been elected president of the local chapter of the Kappa Alpha fraternity for the current year.

Dr. R. L. Page,

Of Batesville, was installed as right worshipful master chaplain of King Solomon Lodge, A. F. and A. M. at Crozet, on January 10.

The Southeastern Surgical Conference

Will hold its eleventh annual assembly at the Tutwiler Hotel in Birmingham, March 11-13. Papers will be presented and clinics conducted by prominent doctors of the United States and Canada. Virginians on the program are Dr. C. J. Andrews, Norfolk, and Dr. Frank S. Johns, Richmond.

Dr. R. L. Sanders, Memphis, is president of the Conference, Dr. Irvin Abell, Louisville, Ky., president-elect, and Dr. B. T. Beasley, Atlanta, secretary-treasurer.

Dr. W. M. Tunstall,

Lovingston, has been re-elected chairman of the Nelson County Board of Supervisors.

Dr. F. W. M. White,

Halifax, N. C., has recently been elected President of the Halifax County Medical Society in that State. He is an alumnus of the Medical College of Virginia.

Directors of Hospital.

Drs. T. E. Armstrong, D. Lane Elder, and W. M. Phipps have been re-elected directors of the John Randolph Hospital of Hopewell.

1940 Essay Contest.

The Mississippi Valley Medical Society offers annually a cash prize of $100, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest (including medical economics) and practical value to the general practitioner of medicine. Certificates of merit may also be granted to the physicians whose essays are rated second and third best. Contestants must be members of the American Medical Association who are residents of the United States. The winner will be invited to present his contribution before the next annual meeting of the Society at Rock Island, Ill., September 25-27, 1940, the Society reserving the exclusive right to first publish the essay in its official publication.

All contributions shall not exceed 5,000 words, be typewritten in English in manuscript form, submitted in five copies, and must be received not later than May 1, 1940. Further details may be secured from Harold Swanberg, M.D., Secretary, Mississippi Valley Medical Society, 209-224 W.C.U. Building, Quincy, Ill.

American Academy of Pediatrics.

The annual meeting of Region II of the Academy, which comprises the southern states from Virginia to Texas, will be held at the Edgewater Gulf Hotel, Edgewater Park, Miss., March 15 and 16. An interesting program has been prepared for the scientific session and in addition to clinical papers, a wide variety of round table and panel discussions have been planned. Opportunity will likewise be afforded for a delightful recreation on the Gulf Coast during its most attractive season. It is sug-

gested that the reservations be made immediately by writing direct to the hotel.

The District of Columbia members of the Academy will be hosts to the annual meeting of Region I on April 4-6, at the Mayflower Hotel, Washington.

An invitation is extended all members of the profession, whether or not they specialize in pediatrics, as the programs will be of appeal, regardless of the field in which they may be interested.

Petersburg Hospital Staff.

At the annual meeting, the following officers were elected: President, Dr. Meade Edmunds; vice-president, Dr. George Reese; secretary, Dr. H. Cantor; vice-secretary, Dr. Munford Yates; member of the medical committee, Dr. E. L. McGill; chart committee, Dr. Fletcher J. Wright, Jr. Dr. M. Yates was elected chairman and Dr. W. B. McIlwaine secretary of the medical section; Dr. George Reese, chairman, and Dr. Cantor secretary of the surgical section; Dr. D. D. Willcox, chairman of the eye, ear, nose and throat section; and Dr. Hilmar Schmidt of the X-ray section.

National Conference on Medical Service.

The fourteenth annual meeting of the Conference will be held at the Palmer House, Chicago, on February 11, at which time a round table on "Group Medical Care and Group Hospitalization Programs" will be presented. Other discussions will be on "Allocation of Federal Funds to States"; "Effective Public Relations"; and "Medical Welfare Programs". Dr. L. Fernald Foster, Bay City, Michigan, is president of the Conference, and Dr. Forrest L. Loveland, Topeka, Kansas, secretary. All members of the American Medical Association are cordially invited to attend.

Dr. C. F. Kincheloe,

East Falls Church, is taking a year postgraduate course in orthopedics at the University of Pennsylvania in Philadelphia.

Stamp Honors Doctor.

A commemorative stamp, now ready for the engravers, bears the likeness of Dr. Crawford W. Long of Georgia. This, according to postal chiefs, heralds the end of an 85-year-old dispute over the discovery of ether as an anaesthetic.

The South Atlantic Association of Obstetricians and Gynecologists

Will hold its annual meeting at the Jefferson Hotel, Richmond, on February 9 and 10, under the presidency of Dr. Robert E. Seibels, Columbia, S. C. Dr. R. A. Ross, Durham, N. C., is secretary-treasurer. Virginians on the program are Drs. H. H. Ware and Joseph Bear, Richmond; Dr. T. J. Williams, University of Virginia; Dr. W. R. Payne, Newport News; and Dr. C. J. Andrews, Norfolk. An interesting meeting has been planned and members of the profession are invited to attend.

Obituary Record

Dr. Harvie Smith Baker,

Of Norfolk, president of the Norfolk County Medical Society, died December 26 after an illness of several months. He was a native of Nansemond County and sixty-one years of age. Dr. Baker graduated from the Medical College of Virginia in 1904. He was a member of the medical staffs of several Norfolk Hospitals and gave much of his time to the Anti-Tuberculosis League. Dr. Baker had been a member of the Medical Society of Virginia since 1905. His wife, two brothers and two sisters survive him.

Dr. Benjamin Henry Bascum Hubbard,

Prominent physician of the Northern Neck section, died at his home at White Stone, January 7, following an illness of several months. He was eighty-six years of age and graduated in medicine from the University of Maryland in 1895. Dr. Hubbard began the practice of medicine at White Stone immediately after his graduation and for the past fifteen years was U. S. Public Health Surgeon at the station there. He was a member of several medical organizations, the Rotary Club, Modern Woodmen of America, and the Masonic Lodge. Dr. Hubbard had been a member of the Medical Society of Virginia for thirty-six years, and was also prominent in the business and social life of his community. His wife, a son and a daughter survive him.

Dr. Philip Doddridge Lipscomb,

Well-known Richmond physician, died January 4, several hours after being struck by an automobile.

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He was born in Albemarle County in 1870 and received his medical degree from the University of Virginia in 1900. Dr. Lipscomb was a founder and first vice-president of the Richmond Tuberculosis Association, of which he had also served as director since 1916. For many years, he was physician at the R. E. Lee Camp Soldiers' Home and became superintendent about six years ago. Dr. Lipscomb had been a member of the Medical Society of Virginia for thirty-nine years. His wife survives him.

Dr. Charles Augustus Simpson,

Prominent dermatologist of Washington, D. C., died December 9 of heart disease. He was a native of Aldie, Va., and fifty-eight years of age. Dr. Simpson graduated from the George Washington University School of Medicine in 1906 and had been a member of its staff since 1911. He was a member of several local and national medical organizations, and had joined the Medical Society of Virginia in 1919. His wife and two daughters survive him.

Resolutions on Death of Dr. Gentile.

WHEREAS, The Great Physician having seen fit to remove from our midst our friend and colleague, Dr. Antonio Gentile; now, therefore, be it

RESOLVED: (*First*), That we, the members of the Warwick County Medical Society greatly feel the loss of our beloved associate; and

RESOLVED: (*Second*), That in the death of Dr. Gentile the profession has lost an esteemed and useful member and the community a valued citizen; and

RESOLVED: (*Third*), That we offer to the bereaved family our heartfelt sympathy in their deplorable loss; and

RESOLVED: (*Fourth*), That a copy of these resolutions be spread on the minutes of the Society, that a copy be sent to the bereaved family, and that a copy be sent to the VIRGINIA MEDICAL MONTHLY.

ORVIN C. JONES,
EMANUEL GREENSPON,
RUSSELL BUXTON,
Committee.

Resolutions on Dr. R. Angus Nichols, Jr.

The Richmond Academy of Medicine wishes to express sincere regret and great sorrow at the death of one of its valued members, Dr. R. Angus Nichols, Jr.

Born in Richmond in 1900, Dr. Nichols was the son of Dr. R. Angus Nichols and the late Ada Herseman Nichols. His early education was received in Richmond public schools and his pre-medical work and doctor's degree obtained at the University of Virginia, where he was graduated in 1926. He interned at the Post-Graduate Hospital of New York, where he also took his graduate work. He was a Fellow in the American College of Surgeons. In 1931 he opened his offices in Richmond, specializing in gynecology and general surgery. He was connected with the Anatomy Department of the Medical College of Virginia until the time of his death.

This untimely death cut short a very promising career, for his abilities had already been recognized and appreciated by both his patients and professional associates. His skill as a surgeon, general knowledge, likeable personality, and fine character had won him a host of friends and the respect of his community. He was very active in the Boys' Work of the Richmond Rotary Club and was Chairman of that Committee. As a deacon of the First Presbyterian Church, he was interested in and took an active part in church work. He has served as Recording Secretary of the Richmond Academy of Medicine. Even though a young man, the death of Dr. Nichols is a great loss to the medical profession.

WHEREFORE, BE IT RESOLVED that a copy of these resolutions be recorded in the annals of the Richmond Academy of Medicine and that a copy be sent to the family of the deceased.

W. AMBROSE MCGEE,
T. B. WASHINGTON,
CHARLES L. OUTLAND,
Committee

Dr. Baxter L. Crawford,

Pathologist of the Jefferson Hospital, Philadelphia, died January 3rd at White Haven, Pa. He was a native of South Carolina, belonging to the neighborhood of Chester. He attended school at Clemson College and graduated in medicine at the University College of Medicine, Richmond, in 1912. Dr. Crawford was afterwards demonstrator in pathology at the Medical College of Virginia, served overseas in the A. E. F. and, after the war, was brought by the late Dr. W. L. Coplin to the pathological department of the Jefferson Hospital, where he was pathologist from 1919 to the time of his death. There he won many friends for his high qualities as a man and as a physician. He was an outstanding pathologist and the highest type of Southern gentleman. He is survived by his widow and two children.

—P. G. H.

Dr. Raymond Evan Bailey,

Hamlin, W. Va., died January 7 after a brief illness. He was thirty-eight years of age and graduated from the Medical College of Virginia in 1927. Dr. Bailey practiced for a time in Richmond before going to West Virginia. His wife and a daughter survive him.

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